REPORT RESUMES

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A STUDY OF THE INTEGRATION OF SERVICES OF INDUSTRIAL MEDICAL DEPARTMENTS AND A REHABILITATION CENTER. FINAL REPORT.

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THIS IS A DEMONSTRATION PROJECT OF COOPERATION BETWEEN A REHABILITATION CENTER AND THREE LARGE INDUSTRIAL COMPANIES. OVER A 3-YEAR PERIOD, 56 WORKERS WHO HAD BEEN INJURED ON THE JOB AND HOSPITALIZED WERE ADMITTED TO THE REHABILITATION CENTER. OF THE 50 WORKERS STUDIED, THE AVERAGE LENGTH OF STAY IN THE CENTER WAS 36 DAYS. A FOLLOWUP STUDY, CONDUCTED 3 MONTHS AFTER DISCHARGE, SHOWED 45 OF THE 50 WORKERS WERE EMPLOYED, AND 50 PERCENT SAID THEY FELT GREATLY IMPROVED. ATTEMPTS ARE MADE IN THE REPORT TO ANALYZE THE REASONS THAT OTHERS WERE LESS SATISFIED WITH THE TREATMENT. OF GREAT IMPORTANCE TO THE PROJECT WAS THE ESTABLISHMENT OF COOPERATIVE WORKING PROCEDURES WITH THE INDUSTRIAL-MEDICAL DEPARTMENTS. THE VARIOUS FACTORS INVOLVED IN THIS ARE DISCUSSED. THE PROJECT STAFF CONCLUDES THAT SUCH COOPERATION IMPROVES THE REHABILITATION OF INJURED WORKERS. ONE OF THE RECOMMENDATIONS IS THAT A FUTURE PROJECT ATTEMPT TO MEASURE ACTUAL MEDICAL COSTS OF SUCH REHABILITATION PROGRAMS. (NS)

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FINAL REPORT

A STUDY OF THE INTEGRATION OF SERVICES OF INDUSTRIAL MEDICAL DEPARTMENTS AND A REHABILITATION CENTER

SPECIAL PROJECT GRANT RD 221

June, 1963

CG 000 109

FOREWORD

This report describes the three year experience of an interdisciplinary Rehabilitation Center staff and industrial medical departments of local corporations in conducting a three year demonstration project for the treatment of injured workmen. The project was conducted by the Harmarville Rehabilitation Center in Pittsburgh, Pennsylvania in conjunction with three large industrial corporations[*] from November 1, 1957 through December 31, 1961. The specific aim was to integrate services between a Rehabilitation Center and a plant medical department and to test the value of adding comprehensive rehabilitation services to an industrial medical program.

The Harmarville Rehabilitation Center and the industrial corporations involved in this study greatly acknowledge the grant support of the Vocational Rehabilitation Administration, United States Department of Health, Education, and Welfare, without which the project could not have been conducted.

A special debt is owed to the Advisory Committee and the consultants who have spent many hours in giving guidance to the project. A final acknowledgment must be made to the plant medical directors for their interest and cooperation in this study.

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I. INTRODUCTION AND PROCEDURE

Several large industries in the Pittsburgh, Pennsylvania area have a tradition of providing organized medical services for their employees. The supervision of medical care for accidents and occupational diseases has been an inherent factor of their operation. A number of these industries are recently stressing the rehabilitation aspects of modern industrial medicine and are strengthening their full time medical administrative staffs for this purpose.

A. Purpose

In 1957 a grant was made by the Office of Vocational Rehabilitation to the Harmarville Rehabilitation Center[1] to develop cooperative relationships with the medical departments of local industrial corporations and to establish a three year demonstration project in which the value of adding comprehensive rehabilitation services to the industrial medical programs might be tested.

This is a report of an action study project that was based on two assumptions, that education by case demonstration, and, improvement in communication between a comprehensive rehabilitation center and medical departments of industrial plants, would be related to improvement in the care and treatment of severely injured patients. It was anticipated that through this joint effort to provide optimum services to patients, the staff of both the industrial plant medical department and the comprehensive rehabilitation center would evolve patterns of improvement in the integration of their services. It was also planned to write up our experiences so that other rehabilitation centers and industrial medical departments could relate this experience to the understanding of their particular problems before undertaking a similar venture.

An Advisory Committee to the project was appointed to help in the development of this study and to facilitate communications. This Committee met a minimum of once a year to evaluate the progress of the project and to make suggestions and recommendations. Representatives of the staffs of the local, central and regional offices of the Bureau of Vocational Rehabilitation were consulted at the time of the conception of the proposed project. This resulted in the addition of a vocational rehabilitation counselor to the research team.[2]

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[1] Hereafter referred to as the Center or Rehabilitation Center.

[2] Appendix A-1 for Major Project Staff.

B. Procedure

The medical directors of these companies and the project staff at the Rehabilitation Center have been working together to extend to individual plants one by one a study demonstration of rehabilitation. This study sample would be made up of selected categories of patients totally or partially disabled (temporary disabled or on limited work) from causes arising out of or in the course of their employment (workmen's compensation cases).

Industry: This study demonstration has involved a large number of plant and Center personnel. The medical director in the local plant, the other industrial physicians in that plant, and eventually most of the medical and surgical consultants who see the patient in the plant were involved in a discussion of the project study in that plant. Either before or after discussing it with the local plant physicians, the cooperating medical directors reviewed in general the questions of cooperation in such a study with an administrative vice-president or other high official in the corporation to whom he was responsible. The directors of industrial relations, employee relations (welfare insurance benefits), safety and legal departments at the corporation level were involved eventually. Some interpretation had been made to them of what was projected, and questions answered as to possible advantages or adverse consequences of company participation in the study.

The counter-parts of such executives in each local plant likewise had to be contacted. The plant manager or his delegate, the director of industrial relations, the safety director and the head of the employment and insurance offices received special interpretation and discussion.

The decision as to participation usually was a responsibility of the local plant manager. A workable approach seemed to be to have the plant medical director set up a meeting of the project director, the plant manager, the director of industrial relations and himself. The plant manager usually decided to cooperate on the basis recommended by the latter two and opportunities to meet with other "staff" personnel were then arranged.

At the regular weekly or monthly meetings of the head or assistant heads of major production or "line" divisions at the plants, a brief presentation would be made of the projected study and its methods. Sometimes this would be done by the project staff, but most usually with the assistance of the plant manager, by the industrial relations or safety director. Occasionally the medical department director would introduce topics to these individuals and prepared the plant personnel for the study. The second or third hand interpretations were supplemented by first hand contacts with the various heads of departments and divisions of the production level as needed in connection with the work-up of individual patients in the study. At the inception of the project contacts were made with the international office of the unions covering most of the employees of the cooperating industries. Most of the railroad unions were omitted because they were so numerous, and the number of employees involved was relatively small.

The chronological order of approach with each corporation usually consisted of clearance by a) the administrative or vice-president level, b) plant medical directors, and c) non-medical department heads. The medical records of current cases were then reviewed to the extent to which the policy adopted by industry and the plant would permit. From these records and from the records of patients subsequently coming into the medical departments for treatment of conditions that might benefit from rehabilitation center care, the group of study patients was identified and the collection of the detailed research record data was begun. This involved frequent contacts and close working relationships between the project staff and medical secretaries, industrial nurses, x-ray and lab technicians in the plant medical departments, union administrators and clerical personnel in the employment and pay office, personnel, insurance and safety departments.

When a decision was made to refer a patient to a rehabilitation center, the attending physician and the plant physician generally had fairly specific ideas as to the objectives of the rehabilitation program. These may involve merely evaluations of the feasibility for rehabilitation work goal as opposed to retirement from the labor market, assistance in the work conditioning or job placement of the patient, assistance in gait training or utilization of other physical medicine measures, or assessing the degree of and attempting to deal with the psychosocial problems that overlie the physical handicap.

Rehabilitation Center: Henry Redkey defines rehabilitation as - "A facility which is operated for the primary purpose of assisting in a rehabilitation of a disabled person through an integrated program of medical, psychological, social and vocational evaluations and services under accompanied professional supervision and in the case of which a) the major portion of such evaluation and services is furnished within the facility and b) all medical and related health services are prescribed by or under the general direction of persons licensed to practice medicine or surgery within the state."

One of the characteristics of a rehabilitation center, then, is that it is a team work process involving the skills of not only one or more physicians but a wide variety of paramedical or co-professional personnel. At least six separate professional groups, organized in separate departments, worked with each patient admitted to the Rehabilitation Center under the project. These include the medical, nursing, physical therapy, psychological, social work and vocational departments. In addition, patients may be seen occasionally in the speech department and occupational therapy department. Within the medical department the project patients are routinely seen by at least four medical specialists in addition to the specialists in industrial medicine and the attending physicians or surgeon from the plant. These four are: internist, physiatrist, orthopedist and neurologist or neurosurgeon. In addition, the patients are frequently seen by one or more members of the following specialists who provided regularly scheduled services at the Center: psychiatrist, urologist, and general surgeon.

An early procedure for securing continuity between pre-admission and post-admission rehabilitation programing was the placing in the Center medical charts copies of: a) the medical and hospital records obtained by the project staff prior to admission, b) the job description, c) the employment and educational history and d) the social interview, if one could be obtained in the hospital or plant prior to admission.

Although the industrial physician or the attending surgeon were invited to attend staff conferences, this rarely happened. Diagnostic work-up and observation in the Center frequently led to modifications before or at evaluation and planning conferences of the tentative rehabilitation plans developed prior to admission. Interpretations of such changes to the plant, securing of approval from the plant physician for change and authorization of payment for special procedures not foreseen, usually were changed through the research director or managing physician of the Center based upon previous relationships existing with the various plant physicians and local plant medical directors.

A three year study was undertaken, working with an employee group estimated at 50,000 men, from which fifty-six patients were admitted to the Rehabilitation Center.

On the basis of consultations with plant personnel and visits to plants by one of our male physical therapists, special work evaluation tasks were developed to supplement the existing program at the Center.

It was intended to include a control group of matched persons who did not attend the Center. This control group was to be selected from plant medical records. However, there was insufficient detail to adequately match control patients on the many pertinent variables. In addition to the technical difficulities in matching, this procedure was somewhat objectionable to the cooperating industries since the procedure would include interviews and further examinations of "closed cases".

Another attempt to gain control cases was from among current cases. An insufficient number of control patients would be obtained who were comparable to the experimental cases. Moreover, the passage of time spread the effect of the project so that its benefits would carry over to any control patients. The effort to build up a control group was continued throughout the project but did not result in a sufficient number of adequately matched persons.

At the beginning of the third year of the project a review was made of available data by an additional consultant,[1] the executive director of the Rehabilitation Center and the project director.[2] It was recommended at this time by the consultants to the project that more information be gathered about the group receiving treatments by a follow-up study. This follow-up study involved the interviewing of fifty of the patients admitted to the Rehabilitation Center during the project period and eight plant physicians involved in the study.

Pre-requisites for inclusions in the sample group were: a) admission to the Harmarville Rehabilitation Center, b) at least three months of working continuously on the job or three month lapse of time from the date of discharge from the Rehabilitation Center and the date of the follow-up interview. All but six of the patients that were admitted to the Rehabilitation Center were included in this study.[3] The study population was not a random sample. Patients were selected from an unknown and much larger group of injured workmen. Selection was made by eight medical directors of industrial medical departments, representing fifteen plants and subsidiary units, of three large industrial companies. The physicians' primary basis for case selection was prognosis for optimum reduction of disability prior to re-employment of the injured workman. (See TABLE XI, page 47).

The data collected for the study sample included information from the Center's case records, the industrial medical department's case histories, employment histories and analysis of the patient's job demands. This information was compiled in a Record Summary.[4]

There were two other sources of information utilized for collection of data. One of these was the Patient's Interview Schedule[5] which was the basic tool for the follow-up study. The second project director who interviewed the fifty patients also evaluated the medical staff records of these patients as they were recorded at the Harmarville Rehabilitation Center. All persons interviewed had been working at least for three months or three months had elapsed since their discharge from the Rehabilitation Center. Those who were working were interviewed in the plant Health Department during the employee's regular work time. This interview required at least an hour to an hour and a half. Three patients were interviewed in their homes because: a) one patient had resigned from the company, b) another patient retired from the company and c) the third patient did not feel he was able to continue working.

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[1] Joseph Eaton, Ph. D., Professor Social Work Research, Graduate School of Social Work, University of Pittsburgh.

[2] Change in project personnel Lee Lacey, Executive Director, Harmarville Rehabilitation Center and Miss Anita McQuillen, new Project Director and Sponsoring Agency Coordinator at the Rehabilitation Center.

[3] June 15, 1960 was arbitrarily chosen as a cut off date for those cases which would be included in the study group. Six patients were still in process of medical treatment or for other reasons were not ready for re-employment.

[4] For more extensive information regarding data collection and Record Summary Schedule see Appendix B.

[5] See Appendix C for sample Patient's Interview Schedule.

The other source of data was the Physician Interview Schedule[1] utilized by Mr. Lee Lacey, Executive Director of the Rehabilitation Center. This schedule was a device to help evaluate the plant physician's understanding and rating of the effectiveness of comprehensive rehabilitation services in reducing disability and returning an employee to work. It was also an excellent opportunity to a) determine whether or not "the customer was satisfied with the services provided," and b) to measure the degree of the integrated services by suggestions, recommended improvements in communication and coordination of services between the industrial health department staff and the Rehabilitation Center staff.

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[1] See Appendix D for sample Physician's Interview Schedule.

II. THE FIRST PHASE OF THE PROJECT

A. Discussion

It is possible to assess certain administrative factors influencing the achievement of better rehabilitation services through coordination of the activities of a rehabilitation center and industrial medical department. Attention must be directed to these factors, which are apparent both in industry and the rehabilitation center, if a venture of this kind is to succeed. Some are beyond the capacity of a given group interested in rehabilitation to change and might be taken as contraindications. These are presented with a brief discussion.

B. Factors Within the Industry

1. State of Development of Industrial Medicine in the Plant

Within the past twenty years industrial medicine has changed its emphasis from the surgery of trauma related to industrial accidents, to a broader program in preventative medicine, health maintenance, helping fit the man to the job, and more recently through the supervision of medical care and the development of a rehabilitation program. The plant surgeon on a part time basis was replaced first by the part time industrial physician to examine patients in the plant and then refer them to the plant general surgeon. The latter was usually paid on a retainer basis; he worked exclusively in the hospital and had control of the patient from the time of injury until deemed ready to return to work and then he discharged him back to the industrial physician. More recently this team has been succeeded by the full time board specialist in industrial medicine, who functions as an administrator and not as a physician. Under his direction in the plant, operates an industrial hygienist, who is concerned with toxicology and control of the environment, laboratory and x-ray technicians, general physicians, who examine patients prior to employment, and other medical and surgical consultants. These last may include a specialist in internal medicine concerned primarily with detection and control of chronic disease of the older age group, a surgeon dealing largely with minor trauma, a dermatologist in industrial skin problems, an ophthalmologist and a radiologist. For patients injured in the plant or more seriously ill there may be referral to hospital-based surgeons and physicians with occasionally the former still being on a retainer from the company rather than a fee for service basis.

If the industrial medical department in the plant is still in the stage where it employs only a part time industrial physician oriented primarily to the emergency service or routine medical examinations, coordination in this situation, would be a special problem not particularly delved into by this project.

2. The Role of the Plant Medical Director and His Staff

It was our observation that in those plants where the medical director was considered the managing physician and where all physicians acted as consultants to him, this plant physician was then able to control his patients' medical care and was in a position to make referrals to the Rehabilitation Center for treatment.

Plants participating in this study have retained surgeons to treat their compensation patients on a variety of bases. Whether on a retainer or fee for service basis and whether the surgeon sees the patients in the plants as well as in the hospital, or only in the hospital, these surgeons generally have a private practice of non-workmen's compensation patients from the same plant on a fee for service basis. Income from the latter is often substantially greater than the income from their compensation practice. For this reason, the surgeon generally values the plant relationship beyond the amount he receives directly from the company.

In developing more adequate rehabilitation services for the patient under the care of the attending surgeon, this project has not been able to approach the problem through the hospital in which the surgeon operates. Of course, the key factor is the surgeon's willingness to contemplate a change which involves both the professional and the financial side of his practice. Given reassurance on these points, whether directly or indirectly, the surgeon's cooperation hinges next on his relationship with the industrial medical department.

In general the degree of cooperation given tends to be related to the surgeon's understanding of modern rehabilitation techniques. Whether the plant physician has the final authority over the patient's disposition and convalescence or not, the nature of his relationship with the attending surgeon is a crucial factor in securing the necessary rehabilitation services.

3. The Sense of Security of Personnel Whose Activities Were Studied

The methods required by this study involve observation of activities in many departments of a plant--the industrial medical department, the activities of attending surgeons in hospitals where patients were treated, the safety department, employment office, and training programs. Also observed to some extent were the management and work supervision of the men, when the job description and the follow-up on return to work were carried out.

Personnel in the specialized departments are naturally reluctant to have portions of their activities thus reviewed in detail by outsiders and introduced by another sometimes rival-department, especially when these persons are not specialized in the activities of their department. They also realize that these outsiders will be in constant contact with persons high in management in the plant and head offices. In this situation it is remarkable how few difficulties arose and how much cooperation was generally obtained.

4. The Un-Intended Misleading Effect on Safety Statistics

The use of the American standard of recording and measuring work-injury experience, sponsored by the National Safety Council and the Association of Casualty Assurety Companies was devised to enable comparisons of safety efficiency to be made between various plants. The effects of the safety department are important and have reduced accidents. The major steel plant with which we dealt had gone for a period of 10,485,721 man-hours[1] without an accident.

However, for a period of two months in the principal plant in which we worked, the safety department was able to secure a ruling that brought the flow of patients to the Rehabilitation Center almost to a stop. Later this was satisfactorily modified, largely because it was obvious that the patient during this period was often unproductive. The final solution in all plants with this problem was to exclude patients that were in the study from the compilation of safety statistics for the plant. Once the threat of "Statistics" was removed relationships with the safety department were notably improved.

A good relationship was developed, however, in spite of the project[2] frequently emphasizing sensitive areas in the safety department, as well as involving much of their time in meeting project staff requests for escort service[1] to various parts of the plant.

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[1] Average for the past 3-5 years (the period in which the project participated with industry), was 3 to 7 million man-hours without an accident. This is the second best record in the steel industry. The best record being 17 million man-hours recorded without any injury.

[2] See page 11 for description of plant visits in relation to methodology.

At the conclusion of the project, the safety department requested slides on the Rehabilitation Center program and various prosthetic devices to be shown to all of the plant foremen. The enthusiasm shown as a result of this presentation resulted in many requests from most of the departments within the plant for another showing of the slides. The safety department was most encouraged by this unusual response to a program sponsored by their department. It was estimated that at least 1,300 personnel saw the slides and of this group 1,000 were foremen.

5. Union - Management Relations

In the past, and to some extent at the present, industrial medical departments in industry have been regarded by management as a part of the industrial relations program, and the medical services, sometimes including compensation payments, have been regarded by management as fringe benefits. For their part the union representatives and the men who share their views tend to regard some of the medical services and even this rehabilitation study as a program designed to save money for the company rather than to benefit the man. Some understanding of a rehabilitation program was essential, but management is naturally reluctant to have an outside agency interferring in such an important and delicate matter as labor relations.

A project demonstration of this kind need not wait until management and union are prepared to sit down together and invite the medical department to develop a better rehabilitation program. Obviously, the medical department will have to take the initiative and find a means of educating their own industrial relations division and securing cooperation from the union in developing rehabilitation services. The medical department and the industrial relations department became aware of the need to involve the local union at a point when a number of patients had been approached for possible referral to the Rehabilitation Center in connection with the study. As, no patient could be compelled to participate in the study even though his medical records might be reviewed, it was essential that the union should understand and ideally be a party to the project from the start.

During the second year of the study it was possible to add to the project advisory staff, a member of the United Steel Workers international staff, and this greatly facilitated understanding of the program by the union and its constituents.

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[1] Company regulation--all visitors must be accompanied by safety men while visiting any part of the plant.

6. The Status of Physical Medicine and Rehabilitation

Although physical medicine is only a part of rehabilitation for patients with certain diagnoses, for the group of compensation patients included in this study, it played a most significant part.

It should be noted that none of the study plants, and none of the general hospitals serving the study plants, had adequate physical or professional provisions for physical therapy or physical medicine much less comprehensive rehabilitation. This deficit exists primarily because there was not a physiatrist involved in the plant clinic structure or in the local hospital as well as the lack of a registered physical therapist who is being properly supervised. The offer of consultations by physiatrists, or orthopedic surgeons, and the assistance of the chief physical therapist from the Center in planning plant rehabilitation facilities, had a two fold purpose 1) to help develop more adequate services in these locations and 2) to allay fears by attending surgeons or physicians who are clinically-minded that the aim of the project was to transfer all patients requiring rehabilitation out of their hands and into the hands of the Rehabilitation Center medical staff.

The next step was the establishment of a regularly scheduled clinic in the health center, of one particular plant, which then provided services of a physiatrist from the Center to consult with the plant medical director on patient care including those that might be referred to the Center and those receiving treatment in the plant health center. During this period, the chief physical therapist of the Rehabilitation Center also attended these scheduled clinics and helped to educate the health center personnel by supervising the orders of the physiatrist. The therapist also acted as the communication liaison between the Rehabilitation Center and the health center in the coordinating of those patients' programs referred to the Rehabilitation Center for treatment. He was able to keep the Rehabilitation Center staff aware of the job demands this patient would be required to meet. This was accomplished by analysis of the job demands[1] as well as discussions with the patient's foreman, safety department and industrial medical department. These services of the physiatrist and the physical therapist provided to industry were financed by project funds.

During the past year, one particular corporation was aware of the obvious need and desirability of this type of consultation and has retained a physiatrist on a regularly scheduled basis to further develop their medical department. It became apparent as the plants participating in this study introduced more exercises and physical therapy into the plant programs for disabled workmen, that they would find a need for a qualified physical therapist. As the program increased and was reviewed critically in terms of prompt return of the man to full employment, the need for special supervision of physical therapy became apparent. This type of clinic arrangement is also being considered by other plant medical directors in this particular corporation as a desirable goal for them.

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[1] American Mutual Liability Company, Engineering Department, Physical Abilities to Fit the Job (North Abington, Massachusetts: Sanderson Brothers, Inc., 1956).

In areas where there are rehabilitation centers, industrial plants and a medical school or medical schools, a significant amount of education of the philosophy of rehabilitation may be carried out. This is particularly true where there is also a graduate school of public health in the area, for example, during the last two years of the project, residents in orthopedic surgery and occupational health rotated through the Center and had some responsibility for the care of some of the patients including project patients.

Pressure from industry following interpretation by its' medical departments leadership by the university medical school, and gradual education of the physicians in the community must be relied on to promote adequate physical medicine facilities in hospitals or utilization of a comprehensive rehabilitation center. The university trained hospital administrators are increasingly aware of the newer developments in this field. The examples are visits by such students to the Rehabilitation Center, invitations to groups or physicians associated with appropriate hospitals usually in conjunction with the visit by a plant physician and medical consultant in connection with the project, demonstrations and tours for physical therapists, nurses and other non-medical professional groups, and the interpretation of individual patients are methods that have been used with some success in the past three years. The nurses and physicians from the industrial corporations involved in the project have visited this Center on various occasions to tour and observe staff conferences in order to get a better understanding of the type of program their patients are undergoing while at the Center.

C. Factors in Relation to the Rehabilitation Center

1. A Good Medical Diagnosis and Treatment Program

It seems likely that only a rehabilitation center with a highly developed medical consultation service could meet the needs of medical departments of industry for rehabilitation. Medical care and rehabilitation for the industrial patient under present administrator arrangements in industry seem virtually inseparable. While the industry theoretically could obtain all the necessary consultations by referring the patient to a number of individual private offices, with only physical medicine being required in the Center, in practice this would fail to provide an adequate rehabilitation service for the industrial patient by virtue of the lack of continuity and coordination of patient care.

The Center's original concern, therefore, was this responsibility that the rehabilitation program in the Center should aid in providing a broader comprehensive medical care program. Experience has shown it unsafe to accept without further evaluation a report of an outside physician, completed sometime previous and without the full knowledge of the type of program the patient in the Center might undertake. A thorough internal medical evaluation often turned up hitherto unknown suspected handicaps unrelated to the one for which the patient was referred. For example, in the group studied 58% of all the patients had secondary diagnoses which were not recorded in the plant health department. Examples of these are diabetes, heart disease, arthritis and kidney disease. Therefore, urological consultation for conditions which affect the bladder, the consultation of orthopedic surgeons for bone and joint pathology, and other medical and surgical consultations soon were found to be essential.

In a sense, then, the Rehabilitation Center may also be regarded as a group practice clinic, except that the principal or managing physician with the responsibility for the patient's program must secure the necessary consultations, pull the findings together, decide regarding referral for further physical restoration or medical investigation, and then relate the medical findings and prescription to the non-medical professional services in the Center.

At the present level of understanding of many industrial physicians, regarding rehabilitation, they may find it easier to accept the need for rehabilitation where they are convinced that the patient will receive adequate medical supervision as well.

2. The Prevalence of Psychosocial Factors in Patients Referred to the Center

The majority of patients referred to the Rehabilitation Center by industrial medical departments have significant con-committal psychosocial problems, which must be considered and often treated as part of the patient's rehabilitation. This study group is composed of those with long standing injuries and those with severe traumatic injuries, often resulting in loss of an extremity whole or in part. Most of these patients in the study group were made up of unskilled manual workers who had much invested in being able to do hard, often hazardous work. It is, therefore, not uncommon to find more of an emotional reaction which in turn is reflected in their social roles.

The means of measuring the significance of psychosocial problems are necessarily limited in this project, but it is probably accurate enough to suggest that many more of those referred for treatment at the Center suffered from such problems as compared to those who were treated in the plant health center.

This may mean that the plant and attending surgeon regard the patient with psychological overlay as a suitable candidate for rehabilitation center services, or it may mean that they found the problems too difficult to be hopeful of success themselves and consequently referred the case to the Center.

That the Center could, in an average length of stay of little over a month, exert a significant influence on long standing severe psychological problems in industrial patients seems improbable. A fairly superficial level of environmental manipulation and counseling in trying to plan the rehabilitation program and a subsequent view to the psychological as well as the physical handicap, constituted the maximum possible achievement of a rehabilitation center with the patients' psychological problems, short of referral for long term psychiatric care.

Few of the patients referred were so disturbed that they would not stay at the Center. Some balked at the battery of psychological tests. Surprisingly few refused to see the psychiatrist after suitable preparation by the social worker.

The psychosocial interviews in the plants created a number of difficulties. This occurred at the beginning of the project when we were interviewing treatment cases and were inspecting the possibility of finding a control group. There was probably more resistance by the industrial physicians to this aspect of the study than to any other. Part of this is probably due to an attempt by the project study staff to obtain too much psychological information from the patient the first time they met him, since if it were to be a control case there might be no subsequent opportunity. Part was probably due to resistance to psychological medicine which is much similar to the resistance to rehabilitation medicine. It is one of the characteristics of cultural lag in the provision of medical services. Non-medical members of management were likewise more resistant to this aspect of the study than to others. Management was respectful of medical research, but questioned activities in the plant by social workers.

Suggestions that insight into psychological problems could be obtained by the industrial physician, from the foreman and others who contacted the patient, without the necessity of the social interview were all considered and found wanting. If anything, a much more elaborate series of psychological tests and interviews on all patients, referred from the plant as treatment cases would be desirable. In developing rehabilitation for such patients, particularly in a project study, there seems to be no alternative but to attempt to overcome the resistance of this aspect of the study.

It might be noted and is of some significant value that there seems to be less opposition to interview of seriously ill or injured patients by a social worker in the hospital. At the onset of the project, it was felt impossible to achieve such interviews for reasons unrelated to the attitude of the attending surgeon or industrial physician. Interpretation of the need to provide patients with support at such a time, and an acceptance of the place of the social worker in a hospital were probable factors.

The basis of general acceptance of the need for psychosocial investigation during the first two years of the project, was at the insistence of the project director. The rationale presented was the need to develop statistical data and not because of its probable equal or more valuable contribution to the rehabilitation process and service.

In contrast to the last year of the project, an obvious change had taken place in the industrial physicians' view of the need for a psychosocial investigation. They were now more aware of the therapeutic value of this approach as supportive to the patient who suffered a severe traumatic injury.

3. The Development of More Specialized Work-Testing and Vocational Placement

The addition of work-testing based on reproduction of the physical demands of the job in a vocational department and the development of adequate work tolerance, requires adjustments by the rehabilitation center in its usual practices. The patient must spend more time in the vocational area. Someone, either from the vocational department, a job analyst or a physical therapist must go to the plant and study the job. Job descriptions are already available in medical, safety and industrial engineering departments of the industry. It was also found that a job description obtained verbally from the patient was often inadequate. The physical therapist utilized in the third year of the project was then able to provide the team with a more meaningful description of the physical demands of the job which proved most helpful in setting up a tolerance conditioning program. The attending physician in the Rehabilitation Center must prescribe patient activity in the vocational department within the limits of the tolerance of the patient, and for chronic medical conditions must also provide some supervision or observation.

Where there is consideration of alternative employment for the patient, in addition to the special testing and vocational counseling, problems of communication with the plant and other Center departments arose. There may be an administrative problem in some case as to whether some aspects of the problem belong in the vocational department, the occupational therapy department, or with respect to the aptitude testing, in the psychological department.

In general the industrial physicians accepted the need for this addition to the rehabilitation program. The attending surgeons were tolerant, but wondered if this were not too elaborate. After all, for years they had been used to looking at a patient and saying whether or not he could go back to work. One important change was made in the physical medicine department at the Center. Historically, patients' physical performance was measured by the department of physical therapy. However, as we developed more experience in simulating work activities and understanding physical demands of the job, the patient's program emphasis was shifted to the vocational area for work conditioning and testing of work tolerance. The approach is now vocationally oriented with work conditioning as a primary goal.

To some patients the atmosphere of the Center was quite a shock after that of a general hospital. Instead of being waited on, the patient was expected to undertake an active and sometimes painful physical activity program. Some patients resisted psychological testing and the investigation of social and family factors that might influence rehabilitation. Others accepted diagnosis and treatment including physical therapy but balked at vocational testing and vocational activities which reminded them of work. It was also noted that exploration of other alternate job possibilities were received suspiciously by the men as they feared they may lose their seniority or possibly their job with the company. Mistrust has been lessened by the involvement of the foreman as soon as possible as a member of the rehabilitation team in helping to determine what jobs are available and what this patient presents in terms of attitudes and abilities for a particular job. This approach helped the patient become cognizant of the company's interest in his returning to work.

The facilities necessary to condition the patient for an eight hour unskilled manual job are available at the Center. As to simulating a job activity completely, this is not practical from the point of view of the environmental atmosphere which is not available at the Center's vocational department. Environmental atmosphere of some parts of a steel plant would involve such features, i.e., as noise, temperature change, moving objects and many other conditions which would be impractical to simulate.

Our procedure of returning the patient to a job in the plant again involved a break with previous tradition both in the Rehabilitation Center and in the plant. While the project was not staffed to provide a specific job placement service, it was found that to leave this to the usual procedures of the vocational department at the Center and re-employment procedures in the plant involved excessive delay and often loss of rehabilitation gains and failure to return the man to work. Again the inclusion of the foreman as a member of the rehabilitation team usually resulted in a job placement for this patient, in proportion to the involvement or investment this foreman had in this particular case. For it is the foreman often who can work with the safety department in assuring them that this man can handle a particular job within the safety requirements of the company.

Any negotiations with the union for return of the patient to a different job was handled at the local plant and did not involve the Center personnel.

4. Coordination of the Patient's Rehabilitation Program in the Center

Adequate communication with the plant and the attending surgeon presented and continues to present problems. This is related to problems in coordination of the patient's care in the Center and the referring source.

Within the Center, the three coordinators', 1) the patient's social worker, 2) the patient's managing physician and 3) the rehabilitation coordinator were regarded with some dissatisfaction by each of the other two coordinators during the first two years of the project. This situation was primarily a result of the process of role definition which hadn't reached culmination. At that time, the managing physician was often also the chief physiatrist and the medical director at the Center and preferred direct communication with the plant, and often he was unaware of prior commitments to the industrial physician or the attending surgeon. Often the coordinator had to follow the case very carefully to ensure carry over of decisions that were made at staff conferences into or by the respective departments in the Center.

This problem was solved by deciding that all communication with the plants by the managing physician is discussed prior to any action with the rehabilitation coordinator at the staff conferences, thereby informing the managing physician of any existing plans or commitments that the Center had made with the industrial physician of the plant. The rehabilitation coordinator is responsible for communicating and planning with the industrial physicians or attending surgeon the major outline of the rehabilitation plan at its various stages and completion, if it is ultimately to result in the patient's return to suitable employment in the plant. The project director and the assistant director were such coordinators for the project patients admitted to the Center.

D. Characteristics of the Sample Group

Our study is restricted to industrial workers injured on the job and given emergency care in their respective plant medical departments followed by hospitalization and then referral to the Rehabilitation Center.

There were fifty-six first admissions, three patients were readmitted following surgical intervention or for other reasons, making the total fifty-nine admissions in all. In the first year of the study there were twenty-seven admissions, second year twenty-one and the third year eleven.[1] These admission rates respectively reflect the referral of cases of longer duration of disability during the first two years of the project and those with less duration of disability were referred the last year of the project. The following findings would confirm the above observations as well as indicate that the plant medical directors did begin to accept the concept of an early referral. One-third of the patients referred the first year of the project had injuries that were less than three months old on admission to the Center as compared to 90% of the patients in this category referred the last year of the project.

The average patient in our sample stayed or remained thirty-six days at the Harmarville Rehabilitation Center. The actual cost of his care not including appliances such as prostheses, canes and so forth averaged about $750.00 per patient.

E. Who Were the Patients

There were fifty-nine admissions to the Center during the study period including three readmissions. However, the group studied was fifty patients.

All of the patients were referred to the Rehabilitation Center by the plant medical directors and/or the attending surgeon after consultation with Harmarville's medical staff and review of the patient's social background and work history. In other words, all of the patients had been medically treated but were judged to be capable of some degree of benefit from a comprehensive rehabilitation program.

All of the patients were manual workers. Most of their jobs could be performed without special schooling.

The employees had a good deal of seniority. Only seven had been employed for less than four years. Nearly three out of five (58%) had been with their company for more than a decade. All patients had a moderate income.

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[1] The reduction in number of cases referred is probably due to a) cleaning up of old cases, b) a labor strike and two business recessions may have contributed to fewer men working, consequently fewer accidents occurring and c) the vigilance and hard work of the safety department.

All but four[1] of the fifty workers were white. All but two of them were male. Eighty-four per cent[2] of the patients were married and living with their wives. Three patients were single. The remainder were separated or divorced.

Most of the workers were middle aged. Sixty-four per cent of the workers were between 40-69 years of age; thirty-six per cent were between 20-39 years of age. A large proportion came from immigrant families. Fifty-four per cent of the workers reported they were brought up in homes where a foreign language was spoken.

Of the 37 patients for whom intelligence test data were obtained, 14% tested bright normal, 62% average and 25% dull normal. Their educational attainment was modest. Three patients had never attended formal schooling, 24 had never been to high school, and 23 had been in high school or graduated. None were educated beyond high school.

The patients were lower middle class, dependent for their income on the capacity to do physical labor. Until their injury they were bread-winners, economically independent and solid citizens of their community, who paid taxes, participated in community activities and were capable of performing a man's or woman's work.

F. What Were the Injuries

The fifty patients came to Harmarville with serious complaints. Their primary diagnoses are shown in TABLE I. When admitted to Harmarville, the patients also showed the following types of residual disability:

1) Muscular disabilities; involving contractures, muscle or capsule tears, muscle weakness or atrophy
2) Skeletal system disabilities, involving structural limitations of joint range
3) Neurological deficits, including motor and sensory disturbances
4) Absence of an extremity, whole or in part, often with an infected stump or an ill fitting prosthesis

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[1] Where the reference is to 14 or less patients--the exact number will be used.

[2] Where the reference is to 15 or more patients--this will be indicated by a percentage.

TABLE I

PRIMARY DIAGNOSIS UPON ADMISSION TO HARMARVILLE*

	Number of Patients	Percentage
CHRONIC BACK PAIN		30%
A. Ruptured Intervertebral Disc	6	
1. Post laminectomy	3	
2. Conservative therapy	3	
B. Other Chronic Back Pain	9	
1. Post laminectomy	3	
a. With fusion	2	
2. Conservative therapy	4	
FRACTURES		30%
A. Into Joint	8	
1. Knee	1	
2. Ankle	1	
3. Os calcis	3	
a. Bilateral	1	
4. Other		
a. Metacarpals	2	
B. Not Into Joints	7	
1. Metatarsals	1	
2. Fibula	2	
3. Tibia and fibula	2	
4. Humerus	2	
AMPUTEES		22%
A. Loss of Two Joints	3	
1. Above elbow	2	
2. Above knee	1	
B. Loss of One Joint	5	
1. Below elbow	1	
2. Below knee	4	
C. Partial Loss of One Joint	3	
1. Foot	1	
2. Hand	2	
POST-TRAUMATIC LIMBS		18%
A. Ankle and Foot	3	
B. Knee	1	
C. Shoulder	4	
D. Elbow	1	

*(N = 50)

5) Unstable joints
6) Pain, with or without swelling

More than four out of five patients suffered two of these residual disabilities upon admission to Harmarville. Only nine patients had just one residual disability and 20 patients sustained more than two residual disabilities.

All but one of the injured workers had been medically treated in a hospital before being sent to Harmarville. Only six had been hospitalized for less than a week, 66% were hospitalized for eight days to six months and three patients needed more than six months of hospitalization.[1] Only a few of the patients came to Harmarville directly after leaving the hospital. In one-third of the cases (34%), less than three months elapsed. In 36% of the cases more than a year had passed since their injury.

Most of the patients were relatively "well" in the sense that they could move around. Only one patient of the total, was bedridden. Fifty-eight per cent of the patients were ambulatory but in need of nursing care and 40% were self-mobile without any need for nursing care.

None of the patients, however, were able to perform their normal roles. Only eight were employed when admitted to the Center. Four were on the same job held prior to their injury and four others had less exacting jobs than those they had before their injury. All the others, 42 patients, were unemployed and unemployable on admission to the Rehabilitation Center.

C. What Were the Results

The great majority of patients left with fewer and less severe residual handicaps than they showed at admission. They had more muscle strength and considerable improvement in joint range of motion. They were all self sufficient at time of discharge and all but five were able to return to the same job or a job appropriate to their disability.[2]

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[1] One patient was never hospitalized. The other patient was hospitalized four years prior to his admission to Harmarville but the precise date was not available.

[2] One of the five patients who did not return to work was cleared physically for work at the time of his discharge from the Center, however, this patient did not feel he was able to resume his former job.

1. Muscle Strength

Success characterized the impact of rehabilitation on the average patient with a muscle disability. He entered Harmarville with severe residual disabilities that inhibited employment. Our data shows that he improved considerably as measured by objective criteria. With few exceptions, patients were able to hold a paid job after discharge. This evidence is consistent with the hypothesis that their rehabilitation was not spontaneous. Staff ratings of muscle improvement showed slight improvement in eleven of the cases, twelve showed moderate improvement and nine marked improvement in muscle strength. The remainder of the patients, 36%, either had no disability involving muscle loss or there was insufficient evidence in the medical records to make a judgment.

2. Joint Range of Motion

Only three patients showed no improvement in joint range of motion. Twelve patients showed slight improvement, thirteen moderate and eleven marked improvement. In the remaining thirteen cases, there was insufficient evidence in the medical record or no joint range of motion problem was involved in the disability.

3. Self Care

There was almost a complete reversal between the time of admission and the time of discharge in the proportion of patients who were able to care for themselves. Upon admission, only 40% were self-mobile, without need for care. One patient was bedridden, 40% were ambulatory but in need of hospital care and nine patients had nursing care needs. At discharge from Harmarville 84% were self-mobile and needed no care. The remaining eight patients were ambulatory but needed nursing care. Among these eight cases were four who left Harmarville without medical clearance, and four others were discharged after a staff diagnosis recommending further surgery.

4. Employability

Judgments regarding employability of each patient were made by the professional staff at Harmarville before his discharge. Most of the industrial workers were considered to be employable at the end of their treatment. In only seven cases the staff judged that they would not be able to return to work. Recommendations in 30% of the cases were that they return to jobs that would be different and less taxing. The remainder were advised that they could return to the same job held before they were injured and do their work without serious limitation.

These judgments turned out to be fairly valid, but too conservative. Three months after discharge five patients were unemployed as against seven predicted to be unemployable by the staff. As TABLE II shows, 90% of the former patients were working. Most of them were doing the same job they held prior to their injury although sometimes with limitations on performance that took into account their residual disability.

TABLE II

EMPLOYMENT CAPABILITY

	Discharge Prediction	Actual Employment Status
Unemployable	14%	10%
In different less complex job	30%	28%
In same job with limitations	26%	26%
In same job without limitations	28%	36%
Unknown	2%	0
Total	100%	100%

The change in employment capabilities is remarkable when one recalls that forty-two of the patients in our sample were admitted to Harmarville as being unemployable. After treatment, only five were unemployed three or more months later. Only one of them was judged to be permanently unemployable. One patient had retired from the company; another had resigned and the remaining two cases were not working for medical and other reasons.

The existence of a category of patients who made clearly insufficient use of the Center's treatment resources indicated that there is room for enhancing the staff's capability of reaching them. How this might be done was not among the questions under review. But our findings suggest that this topic warrants further investigation.

In any discussion of the patient motivation for rehabilitation, it must be kept in mind that injured workers are subject to conflicting interests regarding a treatment program that yields detailed information regarding the exact limits of their handicap. Under workmen's compensation laws an injured worker is entitled to disability payments for the rest of his life, depending on the degree of his disability. Under the

Pennsylvania Statutes he may receive weekly payments. Under the Railroad Compensation Act, he must sue the company for settlement. The more severe the disability, the greater the settlement. Under these circumstances, desire of a worker to restore his capacity to work is inhibited by realization that any such restoration will reduce his financial claim. This possibility is particularly great for cases covered under the Railway Compensation Act, who are living on money borrowed from their labor union, pending a settlement of their claim.

It can be presumed that the workers that were sent to the Harmarville Rehabilitation Center had resolved some of this conflict. But their conflicting motives could very well have affected the degree of involvment of some patients in the Center's rehabilitation facilities.

III. SECOND PHASE OF THE PROJECT--FOLLOW-UP STUDY AND DISCUSSION OF INTERVIEW DATA

A. Patient's Evaluation of the Program

There is reluctance in some fields of clinical practice to make follow-up interviews of patients. In psychiatry and social work it is sometimes thought that the patient should not be exposed to having their old problems brought back to their attention. In compensation cases, concern is expressed that a follow-up study may encourage people to recall complaints and make new demands for help. Some physicians may be fearful that such an interview encourages people to express unwarranted criticism.

Our findings were that none of the fifty patients interviewed showed evidence of being negatively affected. Nor did the study create negative public relation problems for Harmarville or the companies. To the contrary, there were several patients who expressed pleasure at this evidence of continued concern for them by the company and the Rehabilitation Center. These former patients were aware of the fact that the company had agreed to these interviews and that the patients were allowed to take time from their jobs to have these interviews. The patients interpreted this action by the company as interest in how they were doing on the job and also their interest in improving treatment for other injured employees.

It was felt that the findings in this Second Phase of the Study are lacking in scientific objectivity. However, it was the project director's feeling that most companies are concerned that their injured employees receive the best medical care and that the facilities used meet with acceptance and approval of the employees concerned. Likewise it was felt that the company that provides comprehensive medical and rehabilitation services to an injured employee invests in employee morale and strengthens their labor-management relationships. The succeeding information was used as a tool for measuring a relationship between the Rehabilitation Center and an industrial company. An important by-product which was elicited as a result of this subjective interview with the patients brought forth reactions which were useful in treatment planning and in evaluation of the Rehabilitation Center's overall program.

The follow-up study was undertaken to find out the impact of rehabilitation on their subsequent social and work adjustments. The chronically and severely disabled patients entered Harmarville with expectations of gain. What happened to them after discharge? Were they helped in overcoming their residual disabilities and in what way? Our findings regarding these crucial evaluation questions came from an analysis of the Rehabilitation Center's clinical records and a follow-up interview of each of the patients three or more months after continuously working on the job. Those patients who did not return to work were interviewed three or more months after discharge from the Center. Each patient was asked a number of questions in the follow-up interview[1] regarding his experience during the rehabilitation process.

One way to evaluate a program is to ask what the participants think about it. Such subjective judgments have great operational significance, irrespective of whether their opinions are consistent with objective evidence. For example, staff members' attitudes affect what they do for patients in any facility. The patient's own impressions are an important criteria of evaluation. This is what the patient believes and may tell to others.

1. Patient Estimate of Improvement

At the Center all patients receive a medical and rehabilitation evaluation. These evaluations contained the clinical data analyzed on an expost facto basis by one of the authors, A. McQuillen, who has had ten years of experience as a physical therapist and had been employed at the Center as a professional trained social worker for four years. She summarized data in the Center's record arriving at overall clinical judgment regarding the patient's progress at Harmarville. She then interviewed each patient to obtain his views about the same evaluative questions. There was a considerable measure of agreement between these staff and patient ratings as shown in TABLE III.

The patients were more optimistic in rating their own improvement. Seventy-two per cent of the patients thought they had received some or a great deal of help as against only 68% of the cases who were so rated by the staff. It seems that the staff were not deluding themselves, even though in their work with complex problems they had worked hard to bring about improvements in their patient's conditions. Fewer patients thought they had received little or no help, than did the Rehabilitation Center staff. The staff did not over-estimate their own effectiveness. They were conservative when compared to what patients thought.

Forty-five of the fifty patients interviewed were back to work. These former patients who were now working were asked to rate themselves according to, "How disabled do you now feel on the job?" Thirty former patients felt they were hardly disabled. The remainder felt they were disabled to some extent. In this group, three cases, although they were at work, thought they were "almost" or "completely" disabled. In reviewing these three cases one notices that one of these employees is suffering from a chronic disability unrelated to the injury and another was very near retirement age.

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[1] See Appendix C for sample Patient's Interview Schedule.

TABLE III

ESTIMATES OF PATIENT IMPROVEMENTS[1]

Degree of Improvement	(1) Staff Judgment	(2) Patient Judgment
Not at all	14%	20%
A little	18%	8%
Some	36%	22%
A great deal	32%	50%
Total	100%	100%

(N = 50)

Patients equated quality of care and their satisfaction with their length of stay at the Rehabilitation Center with the degree of improvement they subjectively experienced. This was revealed by their replies to the following question: "If you had it to do all over again, how long would you stay at Harmarville?" All but eight patients said they would return, with 28% wanting to stay longer, 44% for as long, and six patients said they would have remained a shorter period of time than they actually did. This same question was asked of the author, who after reviewing the clinical records, predicted the patient's response prior to interviewing the patient. The following TABLE IV compares the author and the patient ratings in regards to length of stay at the Rehabilitation Center.

What is the significance of these subjective judgments? For example, the six patients who thought they had stayed longer than was necessary also had severe disability, but were found working when interviewed three or more months after discharge. Three of these six patients expressed this subjective view that they had benefited some or

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[1] Based on answer to the following questions: (1) Staff judgment answered by Miss McQuillen after she had analyzed agency records, "How much do you think the patient believes he was generally bettered at the Harmarville Rehabilitation Center?" (2) Answered by patients in a follow-up interview, "How much do you think you were helped at the Harmarville Rehabilitation Center?"

TABLE IV

ESTIMATES OF ADEQUACY OF LENGTH OF STAY

Estimate[1]	Staff	Patients
Would not go at all	4%	16%
Stay for shorter period	18%	12%
Stay as long as he did	66%	44%
Stay longer	12%	28%
Total	100%	100%

(N = 50)

a great deal from their stay. The remaining three expressed themselves negatively. They thought there had been no improvement as a result of their being at Harmarville. It is apparent, therefore, that some patients who experienced gains as measured by objective criteria felt dissatisfied with their treatment.

Negative opinion by patients about being at Harmarville were somewhat related to how they enjoyed their stay. Our survey did not explore these feelings in depth but the existence of ambivalence in clients who objectively benefited from a service, but which they subjectively rejected, is worthy of being noted. We need to find out more about what this contradiction means. Can it be remedied by changes in Harmarville's program? Are some people psychologically predisposed to reject the source of aid as a defense mechanism against dependency or inadequacy feelings? Our data serves to pose these questions. Further research will be needed to answer them.

Some interesting sidelights on these patients' judgments are cast by the predictions of one of the authors of patient attitudes, made on the basis of data in the Harmarville files. It will be recalled that the predictions were made before she interviewed the patients. Their comparison with patient judgments shown in TABLES III and IV indicated that the patients had realistic expectations from rehabilitation treatment. They did not expect miracles. Although 40% felt they had a good deal of residual disablement three months or more after discharge from Harmarville, only 20% thought they had not improved at all. The other 80% thought they had improved, even though many continued to feel handicapped to a noteworthy degree.

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[1] Based on the following question asked of patients: "If you had to do it all over again, how long would you stay at Harmarville?" A similar question was answered by Miss McQuillen on the basis of data in the patient's file: "If the patient had to do it all over again, how long do you think he would stay at Harmarville?"

Another measurement of improvement as expressed by the study group was their response to questions relating to their productivity on the job, their ability to do a job and their chances of physical improvement in the future.

The ex-patients of Harmarville expressed a good deal of optimism about their future. Twenty-four per cent of all patients had obtained a "better" job as against four patients who had to take what they thought was a "worse" job. Considering the fact that all were chronically disabled, only 32% thought there were no chances for improvement of their present disability when interviewed after discharge from Harmarville. Only two or 4%, thought that their disability would become worse in the future.

Similar optimism was expressed by ex-patients about their productivity capacity on the job. Sixty-four per cent thought they were as productive as before their injury although none thought they were more productive. Five patients or 10% were not back to work and 26% thought they were not as productive as before. Of the nearly half of the study population who returned to their old job, 73% thought their immediate supervisor was glad to have them back on the job, while only one patient thought the foreman did not care one way or the other.[1]

Most of the workers were employed in industrial jobs that are occupationally terminal. Promotional opportunities are uncommon. Forty per cent mentioned that they hadn't been promoted but promotion chances were probably not affected by their injury. Twenty-four per cent thought their chances for promotion were reduced. Four patients or 8%, had been promoted and two others thought they would be promoted soon. Only five patients were unequivically pessimistic. They thought their injury ruined chances for a future promotion.

The Harmarville patients experienced severe injuries that left them less physically adequate than they had been. In spite of this, after discharge they expressed a good deal of optimism about their future.

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[1] In nine cases the workers didn't know what the supervisor thought; twelve had changed supervisors or were unemployed, so that the question asked was not applicable.

Those who were not optimistic were probably quite realistic. The optimistic patients were perhaps, unduly hopeful about their future work capabilities. Our study population includes few that fit the stereotype of the unhappy, disappointed, and sullen cripple. Most patients had adjusted themselves to the consequences of their trauma. They were looking at the future realistically and hopefully.

It is not suggested that this composite patient image is characteristic of all patients who are chronically injured. Patients whose injuries made rehabilitation prospects unlikely were systematically excluded. But our findings illustrate that experience in a Rehabilitation Center can help many patients to overcome psychic and economic consequences of bodily injury.

2. Rehabilitation Process As the Patient Views It

When does rehabilitation begin? Our study was primarily concerned with what was done for patients at Harmarville after wounds had been healed and residual disabilities could be determined. But it recognized the quality of emergency and subsequent medical care can make the rehabilitation process easier or more difficult. All but one of the patients entered Harmarville after one or more periods of hospitalization connected with his injury. None were sent directly to Harmarville after the injury occurred.

The forty-nine patients hospitalized for their injury had considerable time to adjust themselves to the fact that they had a disability that might handicap them for the rest of their lives. For more than a half of the patients, 54%, hospitalization occurred long ago seven or more months prior to their admission to the Harmarville Rehabilitation Center. In all cases, prior medical efforts had given the patients all the help their doctors believed to be obtainable. Admission to Harmarville was, therefore, an expression of hope by both doctors and patients that more could be done to remedy existing residual disabilities. In this respect, Harmarville differs from most hospitals. Patients have to experience the shock of recognition that they have a handicap. This took place, in most cases, before they arrived at Harmarville. They usually had begun to come to terms with being disabled. Rehabilitation treatment was the last resort to find out how much must be accepted as permanent.

The majority, thirty-nine patients, thought their emergency care was "pretty good" or "excellent". Only five patients rated their emergency care as inadequate and another five expressed their satisfaction in terms such as this: "They did all they could." Five of the patients seemed primarily angry or disappointed about their injury and its impact on them. They were unable to recall specific criticisms of their emergency care, but responded to the question regarding emergency care in terms of a general dissatisfaction not with their care but with their residual condition.

All but one of the rehabilitation patients were first hospitalized for varying periods of time. Six patients spent less than a week in the hospital, and twenty-seven patients spent from eight days to twenty-nine days. More than one-third spent over a month. The average patient viewed his hospital care equally positively as he did his emergency care. Forty-two patients believed their hospital care was "excellent" or "pretty good". Four patients thought it was "just fair" but their complaints were not about their treatment. They expressed unhappiness about their injury. But there were four patients who thought their hospital care was "inadequate". In two of these cases the patients thought that the physician in the hospital was inattentive.

The majority of the patients stayed at Harmarville for more than a month or approximately thirty-six days. Most patients seemed to accept the fact that rehabilitation is not a quick remedy as shown in TABLE V. This point may be recalled from the previous sub-heading that is 72% of the patients thought that if they had to do it all over again they would stay as long or longer at Harmarville. But there were six patients, or 12%, who thought they had stayed too long, and as will be recalled, there were eight patients who thought they would not have gone at all.

TABLE V

LENGTH OF STAY AT THE REHABILITATION CENTER

Time	Per Cent
Less than one week	10%
One through four weeks	30%
Four through five weeks	40%
Eight weeks or more	20%
Total	100%

(N = 50)

In regard to the two items expressed above, i.e., patient's length of stay at the Rehabilitation Center and the patient's subjective impressions as to how beneficial this was, one might think also in terms of the patient's ability to accept this program in terms of timing from onset of disability. This question of timing of admission to a rehabilitation center has been a source for discussion among experts in the medical field. Some favor a short time lapse and early referrals to a rehabilitation center in keeping with the concept of reduction of disability. Our study shows that the patients who had been hospitalized many months before their admission to the Rehabilitation Center could still be rehabilitated successfully. Twenty-seven patients had been discharged from the hospital for a period extending more than seven months prior to their admission to the Rehabilitation Center. In contrast, in two cases who entered Harmarville directly from the hospital reacted negatively to much of their rehabilitation experience. They wanted to be taken care of, not pushed into active rehabilitation exercises, which they felt were beyond their physical capacity. They wanted to be patients, taken care of, rather than involved in active treatment. They also reported feeling depressed by the sight and association with other severely handicapped patients. The Center's operation was not psychologically geared to this minority of patients who thought they need to be treated like a "sick" person. This deficit was later corrected and the patient's dependency needs were met immediately on admission to the Center. The patient was helped to progress through this transition period of dependency to a greater degree of independency. This was quite important in cases where there were clear cut losses, such as amputations. As a result of the Center's new approach to this type of disability, the patients were able to move more readily into an active treatment program.

Not one patient needed all the services available at the Center. Physical therapy, work evaluation, social work, psychiatry, occupational therapy, and speech therapy are prescribed as needed. The availability of these treatment services were the reasons for which the patients were referred by the physicians for comprehensive rehabilitation center care. This fact seems to have been understood by a good many of the patients. As shown in TABLE VI they placed considerable emphasis on treatment facilities when asked to answer the question: "Among the services at Harmarville, please indicate which you would rank as the three most important?" But the patients placed more emphasis on the quality of food, living accommodations, nursing and recreational facilities than the plant physicians who responded also to this particular question.

The presence of a physical therapy department played an important part in the decision of physicians to make a referral to the Center. This service also received the greatest emphasis by the patients. Nineteen patients gave physical therapy first choice. Work therapy and occupational therapy received much less emphasis from the patients than their doctors. Supportive social casework was offered to all patients, but few patients had problems requiring their involvment in intensive social casework.

The patients showed more interest in the Rehabilitation Center's physical accommodations than did their doctors. A minority of five patients might be called "comfort oriented". They singled out none of

TABLE VI

RANK ORDER OF IMPORTANCE OF SERVICES CHOSEN BY THE CENTER'S EX-PATIENTS AND PLANT PHYSICIANS

Services	49 Patients	8 Doctors
Physical Therapy	1	1
Food	2	0
Medical Care	3	5
Room Accommodation	4	6
Work Therapy	5	3
Social Work	6	4
Occupational Therapy	7	2
Nursing	8	0
Recreation	9	0

the Center's special treatment services among its three most important services. They chose its "hotel aspects". Two of their choices of the "most important" service choices were food and living accommodations. The other choice was either general medical care or nursing. They evaluated the Center as they might a general hospital, a place where they could be sick and cared for. They did not express attitudes reflecting an understanding of the nature of rehabilitation services, in which the patient must take an active part.

Three of these five "comfort" oriented patients said they would not return to the Center for treatment if they had to do it all over again. One of them would stay for a shorter period of time than he actually did. This does not suggest that these patients objected to the quality of physical care received. They expressed no major criticism and three spoke highly of the Center's hotel aspects.

The differentiation between patients with a treatment and a comfort perception of the Center is also evident from open-ended responses to a number of questions. One of them was: "What did you especially like at Harmarville?" Thirty-six per cent gave a generally positive response, making remarks like: "Liked everything" or

"Everything--couldn't find fault." Nearly half made treatment oriented responses like: "Working in motor shop with Nick" or "Physical therapy treatment because leg improved so fast." But eight patients made a primarily comfort oriented response. They expressed satisfaction with "Nourishment in the evening, living room homey;" "You could go out and no one said anything" or "Food best, treated well, liked everything, difficult to pick one from another."

Expression favoring the comfort aspects of the Rehabilitation Center became pronounced when patients were asked questions requiring that they make suggestions for improvement: "What would you change if you were the director of Harmarville Rehabilitation Center and wanted to improve the Rehabilitation Center?" A stronger emphasis was found on the responses to the question: "If the Harmarville Rehabilitation Center received a $100,000 gift, how would you recommend it be spent?" For example, thirty-two patients would use the money to provide more privacy for patients, such as bathrooms, recreational facilities and a larger living room. Only five patients would spend the money for the expansion of treatment services.

From the moment that injury occurred to the termination of rehabilitation, the average patient viewed his experience positively. While most of them expressed interest in and understanding of the rehabilitation program, there also was considerable interest in the hotel or comfort aspects of their stay. Food and living accommodations are something to which it is easy to relate to concretely. In a minority of patients, these "hotel aspects" loom large, perhaps so large, that the treatment facility received little attention. A hospital or rehabilitation center which wants to service these people, must take cognizance of their desire to be cared for. It may be that in meeting this need the patients may be able to help themselves by being more understanding and desiring to participate in the Center's rehabilitation program. Referring physicians prescribe a treatment program primarily because of its medical promise, but they must be conscious of the fact that patients will include medically irrelevant comfort criteria in their own assessment of a treatment program.

3. Patient Adjustment to the Center

The personal emergency for patients is over when they enter Harmarville. The drama of the injury has given way to the chronicity of incapacity. The decision to go to the Rehabilitation Center was made usually after careful consideration and discussion with physicians, friends, and family.

Harmarville is located in the outskirts of Pittsburgh. No convenient public transportation is available from the city or its suburban areas. It is, therefore, not surprising that patients received fewer visits while they were there than when first hospitalized for their injury.

The majority of the patients came from steel plants located in one Pittsburgh suburb, with a stable population and a community hospital. The patients were not just "numbers" but injured neighbors. They were cared for by a professional staff of nurses and doctors at the local plant health center, whom they had known for years. Patients from this steel plant had more community support than those living in the more metropolitan areas of the city, whose injuries were treated in a more anonymous atmosphere.

Chronic illness and disability cannot but affect family life. The patient suddenly becomes the focus of worry. He can do less for others and they must do more for him. When interviewed, two patients thought that their family life had suffered a lasting disturbance as a result of their injury. Fifty-eight per cent thought they received a lot of help from relatives, friends and neighbors. Thirty-two per cent did not think they received much help.

In only a minority of the married cases were changes in the family interaction pattern an indirect result of the injury. In about one-fifth of the cases, the patients thought their injury affected their wife's work situation either by returning her to the home or motivating her to take a job to earn additional income. Most of the patients noticed no resentment in their family while they were unable to work. One in five specifically mentioned that there was a big change in his wife's attitude towards him, usually in the direction of more solicitude. The injury did not affect the place of residence. Most patients were able to continue living where they had lived.

Family problems as such were not a major complication of the industrial patients included in our study. The absence of social complications might be related to the fact that most patients went home for the week-end. Being at the Center is almost like being away at work. There are none of the long term interruptions of family life. Their primary identification remains with their family and community. The Rehabilitation Center does not become "home", but a temporary place of treatment which people can leave.

In this study most of the medical and emergency care expenses were covered by insurance and compensation. Eighty-eight per cent of the workers were covered by Pennsylvania Workmen's Compensation Provisions. The remaining six railroad workers were covered by Federal Statutes. The companies' concern was not limited only to financial responsibility. Over half of the employees were visited by their foreman while they were in the hospital with twenty-eight per cent being visited more than once. Only one patient was visited by a foreman while he was at the Center, but patients who wanted to spend week-ends with their families were picked up by a company automobile and driver on Friday afternoon and returned to the Center the following Monday morning. In these and other ways the company showed concern for their employees.

Every patient able to work was re-hired after discharge from the Rehabilitation Center. Patients' needs were met only by the unilateral willingness of the companies to go beyond statutory requirements.

All but six of the patients were members of a labor union. Eight out of nine were visited by union representatives, especially when first hospitalized near the plant. Union representatives often brought candy and cigarettes but no full time union staff member was responsible for following up the cases of each injured worker. This did not seem to be necessary. The care and the rehabilitation of injured workers was an area in which company policy gave rise to few grievances that might require labor union intervention.

Several employees complained about the impact of seniority rules on their chances for optimum work adjustment. Patients whose residual disability made it impossible to return to their previous job or to another job within their department had to be transferred to another department. Upon transfer, union rules require that the worker begin at the bottom of the seniority ladder.[1]

4. General Economic Impact Upon the Patients

Rehabilitation Center patients did not have to cope with the problem of having to pay for medical and nursing care expenses. They were paid for by the companies even when the total cost exceeded the statutory limitations in the Pennsylvania Workmen's Compensation Act. Their earning capacity was reduced or destroyed but their financial obligations continued for rent, educational and other expenses. In the absence of detailed information regarding these economic aspects of their injury, the patients were asked to make a general assessment of the impact of their injury on their standard of living.

A somewhat surprising proportion, 50%, thought they had little to complain about. The remaining 50% thought the injury imposed upon them a lot of financial restrictions or ruined them financially.

These subjective judgments have to be interpreted in light of the fact that nearly all of the patients had a net loss of income as a result of their injury. Workmen's compensation payments were in all cases much less than their weekly wages. Those who had been out of work for two or more years had to live on compensation payments from $37.50 to $42.50 a week. The contrast between this objective fact and the absence of expressed feeling in some patients about this loss of earnings was an unexpected finding. Several workers indicated that you never lost money that you didn't have in your hand. Their outlook on life was one of satisfaction that they had been able to manage. They did not complain as much as the other half of the patients who felt very much financially disadvantaged by their injury.

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[1] Seniority applies to job categories within each plant rather than to the service with the company as a whole. Except for information arrangement, reassignment of an injured worker to another department in the same company is not possible at the same rate of pay and pension prospects and with the same degree of assurance of continued employment.

Income maintenance was more complicated in the case of six employees in our sample who were covered by the Federal Railroad Act. It does not provide for specific disability payments by the company. Instead, each worker is required to sue his company for compensation. Most of these cases were settled out of court, but years can pass before such a settlement occurs. In the meantime the company usually maintains a policy of paying the medical bills for compensatory injuries. The cost of such care would subsequently be deducted from the settlement.

In no case did the income from weekly compensation benefits equal the loss of earnings incurred by not working. In spite of this fact, eight of the workers thought they made some money or broke even. They seemed to be unable to think of having "lost" money they never earned. Nearly half of the patients expressed the opinion that their insurance and compensation programs cushioned them fairly well against the monetary hardships of their disability. A third thought they experienced a lot of financial restrictions and eight patients expressed the opinion that they suffered a catastrophic financial reverse. (See TABLE VII).

In the fifty cases surveyed in this research, it appears that Workmen's Compensation provisions plus medical insurance served the purpose for which they were designed. They provided a cushion against extreme adversity. They helped patients to get optimum medical care that they might not have been able to afford otherwise. The workers who had experienced a traumatic injury or disability did not become totally impoverished as a result. Even the eight patients, who thought they were "practically ruined financially" did not become indigent or dependent on charity. They were able to maintain their self respect and look after their families during the serious medical disability that interrupted their earning power for a long period of time.

This finding does not suggest that the present compensation and insurance provisions are adequate to meet the needs of patients who experience a serious injury. To the contrary, it is clearly obvious that the Pennsylvania statutory provisions are unrealistic. The companies could not render the help they thought their employees required within the maximum of their legal financial responsibility. But what about other companies throughout the state? Do they also extend their concern for the injured workers beyond the maximum that is required by law? How much protection does a worker have if his coverage is dependent on a company's goodwill rather than being a matter of his right? Will

TABLE VII

ASSESSMENT OF FINANCIAL IMPACT OF INJURY TO WORKERS

Worker Assessment	Per Cent*
We made some money because of personal insurance policies	4
We broke even	12
We lost some money, but not too much	32
It imposed a lot of financial restrictions	34
It has ruined us financially	16
No response	2
Total	100

*(N = 50)

company generosity be extended to an unpopular employee or during a period of economic difficulty? And what about the patients, who like that minority in our study, feel financially ruined in addition to permanent disablement?

The average weekly income of the forty-five patients who returned to work after rehabilitation was 93.41 dollars,[1] as compared to their average weekly income prior to their injury of 91.79 dollars.[1] On return to work, we found that no one earned less than $72.00 a week or more than $140.00 a week.

Sixty per cent of the sample group reported that their post injury income was about the same as it had been before they were injured. Of this group two patients thought they were earning more, thirteen patients less and five patients were not working.

In view of the above information the fact that the average patient in the sample remained at the Center for thirty-six days at the cost of approximately $750.00, it is doubtful that many would have benefited without the help of the company. Fortunately, society didn't incur a preventable loss of man power or productivity and income.

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[1] Does not include bonus or incentive pay.

Rehabilitation is becoming an economically attractive proposition to insurance companies that protect companies against workmen's compensation claims. In one study published by the Liberty Mutual Insurance Company, there was a net saving of 36% by rehabilitation patients over their estimate of what it would have cost them to pay compensation. These calculations were based on an estimate of compensation and medical costs that would have had to be paid had the patient not been rehabilitated. While information regarding the general cost of rehabilitation is still fragmentary and comparisons with the cost of non-rehabilitation are quite rare, the evidence that does exist adds up to the conclusion that rehabilitation care, while costly, reduces rather than enhances the economic expenditures that are necessary for injured workers. And even if this conclusion were not generally true, social costs must be considered in any balance sheet of rehabilitation care.

5. Criteria of Amenability

Fifty per cent of the patients checked "a great deal" when asked how much they were helped at the Center. Theirs was the most positive response possible on a four point scale. All of these patients were able to return to work. Among the twenty-five cases there were fifteen in which there was an equally positive staff judgment that patients had made optimum gains and that there was a considerable reduction of their residual disabilities.

This group of "most benefited" patients can be contrasted to _fifteen_ others who were _least amenable_ to rehabilitation treatment. They were selected in the following way:

1. Five patients had not returned to work three or more months after discharge from the Center. Four of them did not think they would return to the Center, if they had to do it all over again. There was no improvement in three of them. The remaining case received a diagnostic evaluation leading to additional surgery prior to attempting comprehensive rehabilitation.

2. Six patients had returned to work, but responded as "not helped" to the question: "How much do you think you were helped at the Harmarville Rehabilitation Center?"

3. Four other patients who also returned to work, replied that they were helped only "a little" at the Center, rather than "some" or "a great deal".

These fifteen patients have at least one common attribute. They were _subjectively disappointed_ with their rehabilitation experience.

TABLE VIII

SELECTED CHARACTERISTICS OF HARMARVILLE PATIENTS BY DEGREE OF AMENABILITY TO COMPREHENSIVE TREATMENT

Characteristics	Highly Satisfied Patients (N = 15)	Disappointed Patients (N = 15)	All Patients (N = 50)
Average age	45.3	48.0	44.0
Per cent with average mental ability (I.Q.)	46.6	46.6	46.0
Average education in years	6.4	6.3	7.2
Per cent graduating from high school	2.0	2.0	2.0
Per cent where foreign language was spoken in patient's home	40.0	40.0	54.0
Average weekly income--before injury after injury	$99.58 $97.37	$82.79 $88.61	$93.08 $94.26
Per cent married and living with spouse	100	87	84
Average year seniority on job	15.5	14.0	14.2
Average days of compensated disability	332	391	359
Original hospitalization--average number of days median number of days	58.4 30	29.3 23	37.1 25
Median months from injury to admission to Center	6	5.5	6.03

TABLE VIII--Continued

Characteristics	Highly Satisfied Patients (N = 15)	Disappointed Patients (N = 15)	All Patients (N = 50)
Average length of stay at Center (days)	37.1	22.3	36.0
Per cent with two or more residual disabilities upon admission to Harmarville	53.3	46.6	45.0
Per cent with pain upon admission to Harmarville	53.3	86.6	60.0

a. Comparison of Amenability Extremes. No simple rule of thumb can be used to explain the differences in treatment amenability. The most and least satisfied patients were quite similar. As shown in TABLE VIII their average age, education, cultural background, mental ability, average annual income, and job seniority were about the same. Two more of the satisfied patients were married and living with their spouse, than was true of the dissatisfied ones. A few more of the satisfied patients had two or more residual disabilities when admitted to the Center. The magnitude of these differences was not statistically significant. They could well have occurred by chance.

The satisfied patients stayed significantly longer in the hospital and at the Center than the dissatisfied persons. Physicians needed more time to treat the satisfied than the least satisfied. On the other hand, the dissatisfied people were slower to return to work, as indicated by their significantly longer average period of compensated disability. They also reported much more pain. Their dissatisfaction with the rehabilitation experience may be very much related to this fact. Pain is a constant irritant.

TABLE IX

RATINGS OF MOTIVATION OF HARMARVILLE
PATIENTS BY DEGREE OF AMENABILITY
TO COMPREHENSIVE TREATMENT

Motivation to Cooperate In Treatment	Highly Satisfied Patients (N = 15)	Disappointed Patients (N = 15)
High	10	2
Average	5	3
Low	0	3
Little	0	3
Unknown	0	4
Total	15	15

In physical therapy and work evaluation, patients sometimes must do uncomfortable and painful physical exercises until their muscles get adjusted to them. Without strong motivation, patients will avoid such rehabilitative activities. The dissatisfied patients not only reported more pain but also were rated by Harmarville's staff to be less well motivated to get maximum benefits from their stay at the Center than were some of the highly satisfied patients. It is possible that these two factors, presence of pain and low motivation affected the patient's perception of how much he has gained from the rehabilitation program. Both tended to reduce his involvment in the program. The above information can be found in TABLE IX.

Inspection of the primary diagnoses of the two extremes shows no simple pattern. Patients in each group had a variety of severe disabilities. (See Page 44 for comparison of primary diagnoses).

Medically trained readers may also want to compare the secondary diagnosis made by the Center's staff--conditions that had not been previously noted as requiring attention prior to admission to the Harmarville Rehabilitation Center.

Highly Satisfied	Disappointed
Osteo-arthritis elbow joint	Post traumatic thrombo-phlebitis
Anxiety neurosis	Pyorrhea
Hypertensive disease	Renal calculus
Rheumatic heart disease	Hyperthrophy tonsils and adenoids
Arteriosclerotic obliterans	Adrenal insufficiency
Rectal polyps	Arcus senilis
Obesity	General arteriosclerosis
Osteo-arthritis, knee	Arteriosclerotic heart disease

b. Reduction of Non-Amenability. There is no question that rehabilitation treatment can do much for some patients. But too little is known how the different elements of the process contribute to the total objective. What can be done in the initial selection process to maximize a person's chances to benefit from the treatment experience? What type of management structure facilitates optimum comprehensive rehabilitation? How should patients, physicians, company, hospital or Center and workmen's compensation insurance laws be related to attain optimum results? Are there communication problems with some patients that can defeat the most dedicated professional efforts to involve him in an experience that will reduce his residual disability? Are there conditions that will prevent people from wanting to be helped, even when help is technically feasible, such as a desire to retire, dependency needs or mental illness?

Successful patients create no organizational problems. The disappointed patients do. This study, however, was not designed to provide a qualitative basis for predicting which patients would be non-amenable to rehabilitation care. The following generalizations can be abstracted from the experience of eleven of the least amenable patients.

TABLE X

PRIMARY DIAGNOSIS IN TWO RESPECTIVE GROUPS: HIGHLY SATISFIED AND DISAPPOINTED

Highly Satisfied						Disappointed
2			CHRONIC BACK PAIN			3
	1		A. Ruptured IV Disc		2	
		1	Post laminectomy	1		
			Conservative therapy	1		
	1		B. Other Chronic Back Pain		1	
		1	Post laminectomy			
			a. With fusion	1		
4			FRACTURES			7
	2		A. Into Joint		5	
			Knee			
			Ankle	1		
		1	Os calcis	1		
			a. Bilateral	2		
		1	Other			
			a. Metacarpals	1		
	2		B. Not Into Joints		2	
			Metatarsals			
		1	Fibula			
			Tibia and fibula			
			Humerus	1		
		1	Vertebral	1		
6			AMPUTEES			3
	2		A. Loss of Two Joints		1	
		1	Above elbow	1		
		1	Above knee			
	3		B. Loss of One Joint		1	
			Below elbow			
		3	Below knee	1		
	1		C. Partial Loss of One Joint		1	
			Foot			
		1	Hand			
			Finger	1		
3			POST TRAUMATIC LIMBS			2
	1		A. Ankle and Foot			
	1		B. Knee			
	1		C. Shoulder		2	
			D. Elbow			

1. Several of the patients were inadequately oriented about what to expect from their stay at the Rehabilitation Center. They were admitted not for treatment but for comprehensive diagnosis. Their company referred them to the Center after the attending physicians had gone as far as they could in working with the patient's disability. It was hard to share this fact with the patient without seeming to criticize his prior medical services. Referring doctors and the Center staff handled this problem by remaining silent. Too little was done to stress the Center's special facilities, its role as an organization with staff and equipment to make diagnostic evaluations of unusually difficult cases.

2. Patients enter a Rehabilitation Center with problems other than those directly related to their residual disability. These are non-injury related health problems that inhibit rehabilitation. They may be near retirement. They may have psychological problems that color patient perceptions of the services offered and their capacity to use them. While psychiatric diagnostic services and social casework treatments were available to all patients there were limitations to the willingness of some patients to accept them.

3. Rehabilitation is a treatment process that depends on patient cooperation. Two of those relatively disappointed patients had severe language difficulties. Two others had general difficulties in relating themselves to other persons. Two others were over cooperative but their dependency needs were not sufficiently recognized. The Center staff focused on their strength and willingness to fit into the program, not recognizing that this resulted in considerable resentment expressed subsequently in their judgment that they "wouldn't return" to Harmarville if they had to do it over again.

The impressive objective findings described in the First Phase of the Study are not negated by the fact that some patients were critical, disappointed, and that there were a few who clearly received no services that were of benefit to them. It is to that degree or capacity that an institution's leadership takes notice of these cases that makes the difference between an agency that is constantly improving and one that is unable to learn from its experience.

B. The Plant Physicians' Evaluation of Rehabilitation Services

The executive director of the Rehabilitation Center at the conclusion of the project interviewed eight medical directors of the plants and subsidiary divisions of the corporations involved. This afforded the Center an opportunity to evaluate Center treatments, communications, coordination, and the degree of development of the relationships of the plant medical departments and the Rehabilitation Center. The objective of this interview schedule[1] was to help measure the degree of the integration of relationships between the industrial company and a Rehabilitation Center. Certainly one of the criteria would be the effect of repeated case demonstrations and the development of procedures to insure better communications and integration of services.

The medical directors interviewed, supervised in their particular plants a number of industrial physicians who were full time, others were part time and specialty consulting staff. In those cases where the medical director was the only industrial physician he collaborated with company consultants and acted on their recommendation.

Seven of the eight plant medical directors had medical specialties in occupational medicine and industrial medicine. At the present time, all eight are employed full time in industry, five of them having had five or more years of full time experience in industrial medicine.

The decision as to whether a patient should be referred to a Rehabilitation Center for further treatment was usually determined jointly in 50% of the cases between the plant medical director and the plant consultant. In the remaining cases the plant medical director made this decision solely.

Injured patients treated in the plant's health department and those sent to the Center differed primarily in the degree of severity of residual disability. The Center received disabled patients, most often because there was a chance of improving the capacity to return to work, sometimes because of complex medical and psychological problems that might best be handled in a comprehensive Rehabilitation Center. (See TABLE XI, Page 47).

The characteristics of those patients referred to a Rehabilitation Center as opposed to those treated in the plant health department were summed up by the physicians interviewed in the following statements. They considered the patients referred for rehabilitation care more severely disabled. One physician defined that as "those injured with foreseeable limited function of major joints and limbs," or in other words the injured employee would in all probabilities sustain a permanent partial disability. Another physician felt that besides the severity of the injury there is also the anticipated problem of getting the man to work.

All of the physicians usually informed the patients the reason for their referral to a Rehabilitation Center was that their cases needed special services which would help them return to work, even though permanently partially disabled. However, six physicians recommended

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[1] See Appendix C for sample Physician's Interview Schedule.

TABLE XI

RANK ORDER OF IMPORTANCE OF FACTORS INVOLVED IN REFERRAL TO A REHABILITATION CENTER CHOSEN BY PLANT MEDICAL DIRECTORS

Factors	Order of Importance
Optimum reduction of disability prior to re-employment	1
Psychosocial maladjustment of patients related to their disability	2
Patient's attitude toward work	3
Evaluation for job change or modification of present job	4
Length of time involved since original injury	5
Unforeseen medical complications	6
Others	7
Anticipated pressure from union	8

(N = 8)

that it might be best that a Center representative as well as the plant physician make this interpretation to the patient to help ensure a better understanding for the referral to the Rehabilitation Center.

Five of the industrial physicians thought that their patients were helped "a great deal" at the Rehabilitation Center, one physician felt his patients were helped "some" and two physicians indicated that their patients were helped "a little". These latter two physicians qualified their answers by indicating that they represented a poor selection of cases, i.e., medically not ready, and negative attitudes on the part of those patients selected for referral to the Rehabilitation Center.

The physicians were most impressed by the comprehensiveness of the evaluation and treatment program, particularly because it was under one roof in the community, where interest and encouragement were given to the patient. One physician felt "that the Center is most useful in restoring patients' confidence in their abilities. That the patient's program was a controlled and coordinated application of physical therapy, occuaptional therapy, vocational therapy in defining the patient's limitation and capabilities."

The physicians' response to the question whether they would make any changes administratively if they were executive directors of the Rehabilitation Center indicates that their thinking fell into two areas: 1) that they would change the location, make it more centralized and develop an outpatient program as well as bring the inpatient program to the central location; 2) that they would be selective in the use of intensive social service because this type of service had limited application for those patients who were less intelligent.

It is interesting to note that their recommendations for how you would spend a gift of $100,000 to improve the Center were characterized by two distinct interests. Many recommended that the Center should spend money on developing coordinated relationships with the industrial corporations. Some thought that initiative for developing this relationship should come from the industrial physician and others thought this was a mutual responsibility. The other interest was in developing gradual work conditioning activities.

All but one of the physicians indicated that management and union could better utilize rehabilitation techniques if they would selectively exempt seniority requirements in the selective job placement of disabled workers and hopefully give the physician a stronger voice in the placing of a patient in a particular job. This point was well illustrated by one physician's remark, "Recognize rehabilitation as a science, therefore, jobs should be arranged for those injured outside of seniority regulations." Another physician had a very interesting recommendation to make that labor and management propose a study and examine the experience of a company or department regarding the number and kinds of employees that have required selective job placement due to injury or disease. Then with the facts before them begin discussing how to approach this problem from an overall point of view rather than on an individual basis.

It was also noted that all but two of the physicians felt that they could very effectively utilize the help of one of the Center's physical therapists in screening cases, analyzing job demands, interpreting consultant's orders and implementing physical therapy techniques in their health departments by teaching the plant nurses.

It is noteworthy from the physical therapy point of view, that when this service was implemented there was some feeling by the physical therapist that the Physical Therapy Association would look upon this procedure as unethical. It soon became evident that the more education a plant physician received the more aware he became of the fact that he needed a full time registered physical therapist.

One of the physicians indicated that beyond the need for physical medicine consultants and a registered physical therapist that it was obvious that there was also a need for social service in the plant medical center.

One-half of the physicians thought that the Center's staff had a better understanding today, of the problems met in returning a man to work than they had at the onset of the project. They ascribed this understanding primarily to the staff's knowledge of job opportunities and physical demands as well as to many other factors involved in selective job placements in a particular industrial plant.

The physicians were generally in agreement as to the factors related to selective job placement. This opinion was based on the premise, that because of the degree of a residual disability of an employee thereby indicating the need for a selective job placement, the following points should be taken into consideration:

1) the type of industry in which the man is working
2) the size of the industry
3) labor agreements which involve seniority rules and, therefore, the industrial relations department
4) the compensation law
5) the compensation department
6) the safety department
7) the new department head in selective job placement of the man.

Most of the physicians said that a by-product of this association has been a developing awareness of rehabilitation techniques and understanding of their services. One physician cited an example that they had lost one of their colleagues to a residency in physical medicine. The most significant statement made by a plant physician in response to this question was "reduction in compensation costs, improvement in doctor-patient relationships and probably improvement in company-union relationships once more people have been helped."

It is evident that the views of these physicians have interpretive value because: 1) six have graduate work in occupational or industrial medicine, 2) five of these physicians have had five or more years of full time experience in industrial medicine, 3) they are all medical directors of plants with health departments which supervise the health of thousands of workers.

IV. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

A. Summary

Several large industries in the Pittsburgh, Pennsylvania area have a tradition of providing organized medical services for their employees. In 1957 a grant was made by the Office of Vocational Rehabilitation to the Harmarville Rehabilitation Center to develop cooperative relationships with the medical departments of local industrial corporations and to establish a demonstration project in which the value of adding comprehensive rehabilitation services to the industrial medical programs might be tested.

This is a report of an action study project that was based on two assumptions, that education by case demonstration and, improvement in communications between a comprehensive rehabilitation center and medical departments of industrial plants, would be related to improvement in the care and treatment of severely injured patients. It was anticipated that through this joint effort to provide optimum services to patients, the staff of both the industrial plant medical department and the comprehensive Rehabilitation Center would evolve patterns of improvement in the integration of their services. It was also planned to write up our experiences so that other rehabilitation centers and industrial medical departments could relate this experience to the understanding of their particular problems before undertaking a similar venture.

The medical directors of these companies and the project staff at the Rehabilitation Center worked together to extend to individual plants one by one a study demonstration of rehabilitation. This study sample was made up of selected categories of patients totally or partially disabled (temporary disabled or on limited work) from causes arising out of or in the course of their employment (workmen's compensation cases). The chronological order of approach with each corporation usually consisted of clearance by a) the administrative or vice-president level, b) plant medical directors, and c) non-medical department heads.

In the Center, at least six separate professional groups organized in a separate department worked with each patient admitted to the Rehabilitation Center under the project. These included the medical, nursing, physical therapy, psychology, social service and vocational departments. In addition, project study patients were seen occasionally in the speech department and occupational therapy department. Within the medical department, project patients are routinely seen by at least four medical specialists in addition to the specialists in industrial medicine and the attending physicians or surgeons from the plant. These four were: internist, physiatrist, orthopedist, and neurologist or neurosurgeon. In addition, the patients were frequently seen by one or more members of the following specialists who provide a regularly scheduled service at the Center: psychiatrist, urologist, and general surgeon.

Fifty-six patients were admitted to the Rehabilitation Center from the participating industrial plants.[1] Fifty of these patients made up the treatment group that was studied by the project staff. Consideration was given the selection of a control group who would not receive the coordinated industrial medical and Rehabilitation Center services, however, the inclusion was not feasible because the data was not sufficiently detailed.

The pre-requisite for inclusion in the treatment group were: a) admission to the Harmarville Rehabilitation Center, b) at least three months of working continuously on the job or three months lapse of time from date of discharge from the Rehabilitation Center and the date of a follow-up interview. The study population was not a random sample. The patients were selected from an unknown and much larger group of injured workmen. Selection was made by eight medical directors in industrial medical departments, representing fifteen plants and subsidiary units of three large industrial companies. The physicians' primary basis for case selection was prognosis for optimum reduction of disability prior to re-employment of the injured workmen.

The data collected for this study sample included information from the Center's case records, the industrial medical departments' case histories, employment histories, and records and analyses of the patient's job demands.

There were two other sources of information utilized in the collection of data. One of these was the Patient's Interview Schedule which was the basic tool for the follow-up study. This involved interviewing the fifty patients who had been treated at the Center and evaluating their medical records for measurements of progress. Another source of data was the Physician's Interview Schedule which involved interviewing the eight plant physicians who had participated in this study.

Characteristics and findings. All of the patients were referred to the Rehabilitation Center by the plant medical directors and/or the attending surgeon after consultation with Harmarville's medical staff and review of the patient's social background and work history.

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[1] This was excluding three re-admissions or a total of 59 admissions to the Center.

One-third of the patients referred the first year of the project had injuries that were less than three months old on admission to the Center as compared to 90% of the patients in this category referred the last year of the project.

The average patient in our sample remained thirty-six days at the Harmarville Rehabilitation Center. The actual cost of his care not including appliances such as prostheses, canes, and so forth averaged about $750.00 per patient.

All of the patients were manual workers. Most of their jobs could be performed without special schooling. The employees had a great deal of seniority. All but four of the fifty workers were white and all but two of them were male. Most of the workers were middle aged. A large proportion came from immigrant families. The patients were in the lower middle income class. Their income was dependent on their capacity to do physical labor. Their educational attainment was modest and 76% were average or above in intelligence. The fifty patients came to Harmarville with serious complaints. Their primary diagnoses can be summarized as follows: a) 30% had chronic back pain, b) 30% sustained fractures, c) 22% were amputees, and d) 18% involved post traumatic extremities such as crush injuries. At time of admission, 84% were unemployed or unemployable because of physical disabilities.

The great majority of the patients left the Center with fewer and less severe residual handicaps than they had shown on admission to the Center. They had more muscle strength and considerable improvement in joint range of motion. They were all self sufficient at time of discharge and all but five were able to return to the same job or a job appropriate to their disability.

B. Conclusions

The most significant conclusion this study can emphasize is that severely injured workmen can be returned to employment through intensive coordination of industrial medical departments and rehabilitation center services. Ninety per cent of the sample group did return to work and two-thirds of these injured workmen returned to the same job held prior to their injury. This is of particular significance in view of the fact that these injured workmen represented non-skilled manual jobs involved in heavy industry.

These services of the industrial medical department and the Rehabilitation Center were integrated as part of the referral, treatment, and return to work processes by means of coordination and communication.

The study findings showed that severity of disability and excessive time lags between the onset of disability and referral to a Rehabilitation Center does not necessarily limit success. Even though severely disabled and having had six months or more of lost time from injury to referral to a rehabilitation center does not, in itself, indicate that rehabilitation benefits would be limited in achievement.[1]

Unless the patient is immobilized by his psychological and/or social problems to the extent that he cannot assume his former role, intensive case work counseling was not necessary, but an evaluation of the patient's needs and supportive case work therapy were found helpful to the patient.

Where industrial departments utilized the Rehabilitation Center staff as consultants periodically in the selection of patients, these plants were most active in referring cases to the Rehabilitation Center. Where the industrial medical department had long standing medical treatment arrangements with local personnel and institutions, there were fewer referrals to the Rehabilitation Center.

Development of relationships between industry and a rehabilitation center following preliminary contacts with the medical director of the corporation should begin by initiating meetings with the industrial medical department of each particular plant. When the patient referred by the medical department reached the point in his rehabilitation process indicating the need for careful review of his ability to return to a particular job or alternate job, it became more important to involve other departments of the plant by maintaining a current and accurate communication link with them, the plant medical director and the Rehabilitation Center. It is most important that an integrated work relationship be initiated by the Rehabilitation Center staff and maintained between industry and the rehabilitation center staff personnel through a well defined and agreed upon procedure with specific staff members in respective organizations.

The Rehabilitation Center professional personnel must be oriented to industrial demands of the patients and their ability to return to the job. These demands would include safety factors, speed of function, physical demands, as well as other pressures of performance. The degree of understanding the Rehabilitation Center staff has for these problems is directly proportionate to the rehabilitation staff's ability to implement methods to simulate each patient's particular work situation.

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[1] These conclusions do not advocate waiting for six months before referring a case for rehabilitation services. However, because a finding of this study group was that fewer cases of three months or less of lost time on the job as compared to those cases with six months or more of lost time before referral for rehabilitation services, would tend to lend themselves to this kind of conclusion.

It is essential that the Rehabilitation Center staff become aware of the problems, policy and procedure of the medical department of the plant. This knowledge is necessary to be able to communicate properly with the industrial plant personnel in terms they understand and accept. In addition, it is imperative that statements or interpretations of the compensation law or the companies' policy be channeled through the proper company-approved representatives. It is through these kinds of skills and communication links that a realistic "working" relationship will evolve.

The findings that a follow-up study has certain positive by-products other than a procedure for collective data were: a) one method to evaluate the services provided, b) the discussion by the patient of unexpressed gripes, complaints, or misunderstandings, c) the interpretation by the patient of the company's and Rehabilitation Center's interest in his progress on the job, and d) to provide the patients with an opportunity to positively contribute to the welfare of others, by their suggestions to better the facility or the program.

C. Recommendations

The following recommendations have implications for the Vocational Rehabilitation Administration, industry (unions and management), and the staff and board of a rehabilitation center or facility.

1. The cooperating industry, rehabilitation center and Vocational Rehabilitation Administration should be significantly involved respectively through the medium of staff and financial participation. The financial participation should be eligible for matching grant funds. (Funds referred to above should be in addition to payment for services).

2. A future project designed to measure actual medical costs. These costs would include dispensary, hospital, surgical, rehabilitation and follow-up care for three months after return to the job.

   Collection of data pertaining to all income received by the employee during the period of treatment and convalescence, such as, health and accident income, workmen's compensation payments and union contributions.

   A project of this suggested design would be helpful to industry and the health field in planning their future growth and development.

1. In the Rehabilitation Center

   a. All Center personnel concerned with the treatment of patients and recording of clinical data should be oriented as to the specific data and the form required by research study design. Remember to orient new personnel when they are added to the staff.

   b. Systematic data should be collected and rating scales developed for evaluation of patients at time of admission and discharge from the rehabilitation center. This information must be accurately recorded in order to make comparisons of changes in the patient's condition.

   c. Where a rehabilitation center has a significant proportion of chronically disabled or older patients whose programs are necessarily viewed from a different focus than those of the injured workmen, we would consequently recommend the following: 1) house the industrial patients separately from the other patient population except for utilizing the dining room and common treatment facilities, 2) utilization of a professional team exclusively to work with the injured workman as a disabled patient.

   d. The rehabilitation facilities should have sufficient physical space and equipment for simulating work conditioning activities which represent the employment and job characteristics typical of the patients served at the center.

2. In Industry

   a. The rehabilitation center staff should be available for consultation to the medical departments of industry and to the injured employee as early as possible after injury, including hospital visits by the center staff to meet and talk with the prospective patient.

   b. A valuable asset is the utilization of a male physical therapist to evaluate the physical demands of the job in helping to determine selective job placement.

   c. Management, the medical department, and unions should be educated in the problems and procedures for selective job placements. The medical departments should be allowed to become more involved and responsible for the placement of employees needing selective jobs.

APPENDIXES

Major Project Staff — Appendix A - 1

Data Collection and Analysis — Appendix A - 2

"Modification of Hanman's Specific Method" — Appendix A - 5

Record Summary — Appendix B

Patient's Interview Schedule — Appendix C

Physician's Interview Schedule — Appendix D

MAJOR PROJECT STAFF

2b

Project Directors - Gordon Hatcher, M.D., D.P.H.
(November 1957 - September 1959)

Anita McQuillen, R.P.T., M.S.W.
(October 1959 - December 1961)

Associate Project Director - James Herrington, R.P.T. (Chief)
Job Analyst October 1959 - December 1961)

Bureau of Vocational Rehabilitation Liaison - Michael Pollock

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Sponsoring Agency Coordinator
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School of Public Health
University of Pittsburgh

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* Deceased

DATA COLLECTION AND ANALYSIS

The data collected on the study sample included the following information which was compiled in a Record Summary and coded on IBM Cards:

a) The available medical records from the plant medical department, consulting and/or attending surgeons, and general hospital.

b) Employment and educational records from the plant employment office.

c) Results of: observations of the physical and other demands of the patient's old job or anticipated alternate job. Results of interview with the patient's immediate foreman; job analysis information according to the modifications of Hanman's "Specific Method".[1]

d) Information from the psychosocial interview of the patient in the hospital and/or Rehabilitation Center.

e) Findings of medical evaluation at the Rehabilitation Center by appropriate specialists, traumatic cases are routinely seen by an internist, physiatrist and orthopedic surgeon.

f) Prescriptions: reports of supervision and follow-up of the physical, occupational and vocational therapy by the Center physiatrist. This included in 37 cases a muscle test and joint range of motion test which was administered at the time of admission and at the time of discharge.

g) Psychological evaluations on most cases and psychiatric evaluations in selected cases. The psychologist used four tests[2] plus the interview to arrive at his impression as to motivation for return to work and the Wechsler-Bellevue Test to determine intelligence.

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[1] See attached modifcations of Hanman's Form.

[2] The Draw-A-Person Test, Rorschach Projective Test, Thematic Apperception Test and Sentence Completion Test.

h) Findings of vocational evaluation and rating of work tolerance based on the medical recommendations as the disability was related to the specific physical demands of the job.

i) Discharge reports by the Center staff which were summarized by the physiatrist who also indicated employability at the time of discharge.

ANALYSIS OF FACTUAL DATA

A record summary was developed which included all the pertinent factual information collected either at the plant or in the Center. It is evident that certain evaluations or definitions as recorded in the Record Summary need an explanation:

Primary Diagnosis: This diagnosis had been determined prior to admission to the Rehabilitation Center. See Table I page 26 for types and kinds of disabilities in sample group.

Secondary Diagnosis: This diagnosis was recorded on those patients whose health department record did not indicate this information.

A modification of the International Coding System was used, i.e., small study sample, therefore, classification of three digit number rather than decimal was used. This classification is now noted by the Center's internist and is standard recording for primary and secondary diagnoses.

Residual Diagnosis: It was and still is necessary to develop some method for evaluating disability after acute medical problems are diagnosed, treated and stabilized.

It soon became apparent that one type of injury wasn't necessarily compatible with another injury of the same nature by virtue of the kind and degree of residual complication. Therefore, a method of classification was devised to give some acknowledgment of this particular problem. See Record Summary for diagnostic code which included pain and swelling and residual disability classification.

Muscle and Joint Range of Motion Evaluations: Muscle testing and joint range of motion evaluation was completed on 37 patients at time of admission and discharge from the Center. The form devised by the Committee on After Effects, National Foundation for Infantile Paralysis, Inc. (revised March 1946) was used for muscle testing. The numerical as well as letter grades were given and the criteria that are indicative of these grades was used to arrive at various muscle strengths.

The joint evaluation used was prepared in conjunction with the American Medical Association Committee on Permanent and Partial Disability ratings. The joints were measured by the use of the goniometer. These were recorded in conjunction with the ratings set forth by the Committee of the American Medical Association. This was recorded on a joint examination form in which we incorporated the range of motion for the entire spinal column. The percent of improvement was determined objectively by substracting the admission evaluation from the discharge evaluation.

Improvement Code Analysis: This was determined by staff reports as recorded in individual department records. Specificially, question #39 and #40, the comparison of the admission and discharge record of muscle and joint range of motion tests and the managing physicians indication of the degree of improvement as recorded in the discharge summaries are examples of defining improvement.

Examples of criteria used in defining "no improvement" were a) patient left Center without treatment, b) referred for diagnostic services, no treatment needed, c) did not respond to treatment. The criteria used for defining "unknown" were: a) recommended surgery or surgical considerations, b) medical condition did not warrant therapy at this time.

A value judgment was used in evaluating the responses to questions #42, #43, and #44. These value judgments were recorded by the various therapists working with the patient. The determination was made by the author based on the patient's attitude, participation and progress the patient made in the various departments in the Center. These impressions were determined by the author prior to her interviewing the study group at the plant health department or in his home.

FORM 1

Physical Demands Analysis Work Sheet

Job Title: ....

....

Job Location: ....

Physical Factors:

	1	1— 5	Lifting (Pounds) — Includes pushing and pulling effort while stationary	
	2	6— 10		
	3	11— 25		
	4	26— 50		
	5	51—100		
	6	100+		
	7	1— 5	Carrying (Pounds) — Includes pushing and pulling effort while walking	
	8	6— 10		
	9	11— 25		
	10	26— 50		
	11	51—100		
	12	100+		
	13	R	Fingering	
	14	L		
	15	R	Handling	
	16	L		
	17	R	Below Shoulders	Reaching
	18	L		
	19	R	Above Shoulders	
	20	L		
	21	R	Throwing	
	22	L		
	23	Sitting		
	24	Total Time on Feet		
	25	Standing		
	26	Walking		
	27	Running		
	28	Jumping		
	29	Legs Only	Climbing	
	30	Legs and Arms		
	31	R	While Sitting	Treading
	32	L		
	33	R	While Standing	
	34	L		
	35	Stooping		
	36	Crouching		
	37	Kneeling		
	38	Crawling		
	39	Reclining		
	40	Twisting		
	41	Waiting Time		

	42	Far — Snellen	Seeing
	43	Near — Jaeger	
	44	Color	
	45	Depth	
	46	Hearing	
	47	Talking	
	48	Other:	
	49	Other:	

Environmental Factors:

	50	Inside	
	51	Fair Weater	Outside
	52	Wet Weather	
	53	Hot °F	
	54	Cold °F	
	55	Sudden Temperature Changes	
	56	Humid	
	57	Dry	
	58	Moving Objects	
	59	Hazardous Machinery	
	60	Sharp Tools or Materials	
	61	Cluttered Floors	
	62	Slippery Floors	
	63	High Places	
	64	Electrical Hazards	
	65	Exposure to Burns	
	66	Explosives	
	67	Radiant Energy (Kind):	
	68	Poor Lighting	
	69	Poor Ventilation	
	70	Toxic Conditions (Kind):	
	71	Wet Quarters	
	72	Close Quarters	
	73	Vibration	
	74	Noise	
	75	Working With Others	
	76	Working Around Others	
	77	Working Alone	
	78	Shifts	
	79	Other:	
	80	Other:	

.... Job Analyst's Name

.... Verified with: Foreman's Name

.... Date

APPENDIX B

RECORD SUMMARY

RECORD SUMMARY

Name ______________________________

1-5. Patient's Number ____________________ 1-5. ___

6. What is the highest grade (or year) of regular school this person has ever attended?

If now attending a regular school or college, check the grade (or year) he is in. If it is in junior high school, check the box that stands for that grade (or year).

1. ___ Never attended school
2. ___ Kindergarten
3. ___ Elementary school (grade) 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐
4. ___ High school (year) 1 ☐ 2 ☐ 3 ☐ 4 ☐
5. ___ College (year) 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ or more

6. ___

7. Language spoken in the home of the patient's parents

1. ___ English
2. ___ Other (specify) ____________________

7. ___

8. Living alone

1. ___ Does not apply - lives with family
2. ___ Single
3. ___ Divorced
4. ___ Widowed
5. ___ Separated
6. ___ Other (specify) ____________________

8. ___

9. Age

1. ____ Under twenty
2. ____ Twenty to twenty-nine
3. ____ Thirty to thirty-nine
4. ____ Forty to forty-nine
5. ____ Fifty to fifty-nine
6. ____ Sixty to sixty-nine
7. ____ Seventy and over
0. ____ Unknown 9. ____

10. Sex

1. ____ Male
2. ____ Female 10. ____

11. Patient's Color

1. ____ White
2. ____ Negro
3. ____ Other (specify) ______________________
4. ____ Unknown 11. ____

12. Occupation (specify) ___________________________

1. ____ Unskilled - specify ______________________
2. ____ Semi-skilled - specify ____________________
3. ____ Skilled - specify ________________________
0. ____ Unknown 12. ____

13. Length of time with company at time of injury

1. ____ Less than one year
2. ____ One to two years
3. ____ Three to four years
4. ____ Five through nine years
5. ____ Ten through nineteen years
6. ____ Twenty years or more
0. ____ Unknown

13. ____

14. On the job training required

1. ____ None
2. ____ One month or less
3. ____ One month through five months
4. ____ Six months through eleven months
5. ____ One year or more
0. ____ Unknown

14. ____

15. Primary skill required

1. ____ Primarily manual (operation of machines or work with one's hands)
2. ____ Mental (responsibility for decisions involving other people)
3. ____ Manual and mental
4. ____ Primarily mental and administrative
5. ____ Professional (requires school and/or training)

15. ____

16. Income

Before Injury

1. ____ Pay class (hourly rate)

2. ____ Incentive Total ____________

Three months after injury

1. ____ Pay class (hourly rate)

2. ____ Incentive Total ____________

Change of average income before and after injury

1. ____ No change

2. ____ Increase (please specify) ________________

3. ____ Decrease (please specify) ________________

4. ____ Not working yet - medical or other reason

0. ____ Unknown

16. ___

17. Number of Dependents

1. ____ None
2. ____ One
3. ____ Two
4. ____ Three
5. ____ Four
6. ____ Five
7. ____ Six
8. ____ Seven
9. ____ Eight

17. ___

18. Number of months between date of injury and admission to Harmarville Rehabilitation Center

1. ____ Three months or less

2. ____ Four through six months

3. ____ Seven through twelve months

4. ____ One year or more (please specify) ________________

0. ____ Unknown

18. ___

19. Compensation Status

1. ____ Federal Workmen's Compensation
2. ____ Pennsylvania Workmen's Compensation
3. ____ Insurance - Non-compensation
4. ____ Other (specify) ______________________________
0. ____ Unknown

19. ____

20. Length of original hospitalization - in number of days after injury

1. ____ A week or less
2. ____ Eight days through twenty-nine days
3. ____ Thirty days through five months and twenty-nine days
4. ____ Six months and over (please specify) ________________________
5. ____ No prior hospitalization
0. ____ Unknown

20. ____

21. Total days of compensated disability

1. ____ A week or less
2. ____ Eight days through twenty-nine days
3. ____ Thirty days through five months and twenty-nine days
4. ____ Six months and over (please specify) _______________
5. ____ Doesn't apply (railroad case)
0. ____ Unknown

21. ____

22. Total number of days of limited employment during first three months after injury

1. ____ Less than one week (seven days or less)
2. ____ One through four weeks
3. ____ More than one months (please specify)
4. ____ None

22. ____

23. Number of weeks of stay at rehabilitation center

1. ____ Less than one week (seven days or less)
2. ____ One through four weeks
3. ____ Five through seven weeks
4. ____ Eight or more weeks

23. ____

24. Mental ability (I.Q.)

1. ____ Bright normal
2. ____ Average
3. ____ Dull normal
4. ____ Unknown
5. ____ Refused testing

24. ____

25. Motivation to return to work

1. ____ High
2. ____ Average
3. ____ Low
4. ____ Little or none
0. ____ Unknown

25. ____

26. Original disability on admission to Harmarville

1. ____ Bedridden - needs total care
2. ____ Chairridden - needs some care
3. ____ Ambulatory - needs hospital care
4. ____ Self-mobile - with limited care needs
5. ____ Self-mobile - needs no care
0. ____ Unknown

26. ____

27. Employment disability on admission to Harmarville Rehabilitation Center

1. ____ Unemployable
2. ____ Able to work in sheltered employment
3. ____ Employment in a different, less complex job
4. ____ Can continue on the same job with limitations
5. ____ Can continue on the same job without limitations
0. ____ Unknown

27. ____

28. Disability at time of discharge from Harmarville Center

1. ____ Bedridden - needs total care
2. ____ Chairridden - needs some care
3. ____ Ambulatory - needs hospital care
4. ____ Self-mobile - with limited care needs
5. ____ Self-mobile - needs no care
0. ____ Unknown

28. ____

29. Employment disability at time of discharge from Harmarville Center

1. ____ Unemployable
2. ____ Able to work in sheltered employment
3. ____ Employment in a different, less complex job
4. ____ Can continue on the same job with limitations
5. ____ Can continue on the same job without limitations
0. ____ Unknown

29. ____

30. Improvement Code

1. ____ No improvement
2. ____ Some improvement
3. ____ Considerable improvement
0. ____ Unknown

30. ____

-32. Primary Diagnosis - Pre-Center (please specify) ____________________ 31-32. ____

-35. Second Diagnosis - In-Center (please specify) ______________________ 33-35. ____

000 ____ No additional diagnosis (other than pre-center)

X ____ Not seen by internist

36. First Residual Diagnosis

A. Musculature

1. ____ Contracture

2. ____ Muscle or capsule tear

3. ____ Weakness

4. ____ Atrophy

B. Skeletal or Bone Involvement

5. ____ Structural limitation of joint range

C. Neurological Involvement

6. ____ Motor

7. ____ Sensory

D. 8. ____ Absence of an extremity whole or in part

9. ____ Improper prosthesis

0. ____ Infection of stump

X. Unstable joint

Y. Decreased work tolerance (cardiac) 36. ____

37. Second Residual Diagnosis

O. ____ One residual diagnosis only 37. ____

38. Pain or Swelling

7. ____ Pain only

8. ____ Swelling only

9. ____ Pain and swelling recorded

0. ____ No pain or swelling recorded 38. ____

39. Muscle Testing Evaluation 39. ____

40. Joint Range of Motion Evaluation 40. ____

41. Job status after three months on the job

1. ____ Same job no limitations

2. ____ Same job with limitations

3. ____ Different job appropriate to disability

4. ____ Different job unrelated to disability

5. ____ No job

0. ____ Unknown 41. ____

42. How much do you think this patient believes he was bettered at the Harmarville Center?

1. ____ Not at all

2. ____ A little

3. ____ Some

4. ____ A great deal 42. ____

43. If the patient had to do it all over again, how long do you think he would stay at Harmarville?

1. ____ Not go at all
2. ____ Stay for a shorter period; he thinks he stayed too long
3. ____ Stay as long as he did
4. ____ Stay longer than he did; he feels he left too early

43. ____

44. Your judgement of the patient's use of available rehabilitation services at Harmarville:

1. ____ Optimum
2. ____ A fair amount
3. ____ Minimum
4. ____ Almost none

44. ____

APPENDIX C

PATIENT'S INTERVIEW SCHEDULE

I

TREATMENT AT HARMARVILLE

Leave
Blank

42. How much do you think you were helped at Harmarville Rehabilitation Center?

1. ___ Not at all   Please explain: ________________
2. ___ A little   ______________________________
3. ___ Some   ______________________________
4. ___ A great deal   ______________________________   42. ___

43. If you had to do it all over again, how long would you stay at Harmarville?

1. ___ Not go at all
2. ___ Stay for a shorter period; I stayed too long
3. ___ Stay as long as I did
4. ___ Stay longer than I did; I left too early

Please explain: ______________________________
____
____   43. ___

44.-46. Among the many services at Harmarville, please indicate which you would rank as the three most important? Assign no. 1 to the most important, 2 to the second most important and 3 to your third choice.

1. ___ Speech Therapy
2. ___ Social Work
3. ___ Occupational Therapy
4. ___ Physiotherapy
5. ___ Work Therapy
6. ___ The Food
7. ___ Living Accommodation (Rooms, Recreation Room, etc.)
8. ___ Medical Care   44. ___
9. ___ Recreational Program   45. ___
10. ___ Nursing Care   46. ___

II

OTHER TREATMENT

Leave
Blank

47. How do you generally rate the quality of emergency care rendered to you when you were injured at the plant?

1. ____ Excellent   Please explain some of your reasons:
2. ____ Pretty good   ______________________________
3. ____ Just fair   ______________________________
4. ____ Inadequate   ______________________________   47. ____

48. How do you generally rate the quality of hospital care received following your injury, before you came to the Harmarville Rehabilitation Center?

1. ____ Excellent   Please explain some of your reasons:
2. ____ Just fair   ______________________________
3. ____ Pretty good   ______________________________
4. ____ Inadequate   ______________________________   48. ____

III

YOUR JOB

49. How would you describe the job you had at the time you were injured?

1. ____ Making heavy physical demands on me
2. ____ Making only moderate demands for physical strength
3. ____ Making light physical demands on me

Please explain: ______________________________

____

______________________________   49. ____

Leave
Blank

50. How hazardous did you consider your job before your injury?

1. ___ Potentially hazardous
2. ___ A little hazardous
3. ___ Very hazardous

50. ___

Who visited you when you were in the hospital?

	NEVER	JUST ONCE	MORE THAN ONCE	
51. Family members				51. ___
52. Someone from the union				52. ___
53. Fellow employees				53. ___
54. Foreman (please specify whether he was the boss)				54. ___

Who visited you when you were at Harmarville Rehabilitation Center?

	NEVER	JUST ONCE	MORE THAN ONCE	
55. Family members				55. ___
56. Someone from the union				56. ___
57. Fellow employees				57. ___
58. Foreman (please specify whether he was the boss)				58. ___

Leave
Blank

59. How would you compare the number of visitors per week at hospital and at Harmarville Rehabilitation Center?

1. ____ About the same

2. ____ More at Harmarville Rehabilitation Center than hospital

3. ____ More at hospital then at Harmarville Rehabilitation Center 59. ____

60. What did you think about the number of visitors you received at Harmarville Rehabilitation Center?

1. ____ As much as I expected

2. ____ More than I expected

3. ____ Less than I expected 60. ____

61. How disabled do you feel you are now on the job?

1. ____ Hardly at all Please explain: ____________________

2. ____ A good deal ____________________________________

3. ____ Almost completely ____________________________________

4. ____ Completely ____________________________________ 61. ____

62. What do you think are the chances for improvement of your present disability?

1. ____ High Please explain: ____________________________

2. ____ Fair ____

3. ____ Little ____

4. ____ None ____

5. ____ My disability will probably become worse in the future 62. ____

Leave
Blank

63. How does your job compare to your previous one?

1. ____ It is the same job
2. ____ It is a different job, but just as good as the old one
3. ____ It is a better job
4. ____ It is a worse job
5. ____ No job, unemployed

Please explain: ____

____ 63. ___

64. Are you as productive on your job now, in comparison to your productivity before the accident?

1. ____ More productive than before   Please explain: __________
2. ____ Just as productive   ______________________
3. ____ Not as productive as before   ______________________ 64. ___

65. How do you think your immediate supervisor or foreman feels about having you back on the job?

1. ____ Does not apply
2. ____ He was glad
3. ____ He probably did not care much one way or the other
4. ____ He probably was sorry I came back
5. ____ I do not know what he thinks

Please explain: ____

____

____ 65. ___

Leave
Blank

66. How do you think your injury has affected your chances for promotion?

1. ____ Have been promoted since injury

2. ____ Have not been promoted, but think I will

3. ____ Have not been promoted, but my job is not of the kind in which promotion would have been affected by my injury

4. ____ The injury reduced my chances for promotion

5. ____ Injury ruined my chances for promotion 66. ____

IV

YOU AND YOUR FAMILY

Please list no more than three organizations, church, civic, fraternal, labor or other in which you were most active prior to your injury?

How would you rank your present participation in comparison to your participation before your injury?

	NAME OF ORGANIZATION	MORE ACTIVE	ABOUT THE SAME	LESS ACTIVE	DROPPED OUT	
67-68.						67-68. ____
69-70.						69-70. ____
71-72.						71-72. ____

73. When did you move into this house (or apartment)?
(Check date of last move)

1. ____ In 1959 or 1960

2. ____ In 1958

3. ____ In 1957

4. ____ April 1955 to Dec. 1956

5. ____ Jan. 1954 to March 1955

6. ____ 1950 to 1953

7. ____ 1940 to 1949

8. ____ 1939 or earlier

9. ____ Always lived here 73. ____

Leave
Blank

74. If there were moves, was at least one related to your injury?

1. ____ No Please explain: ____________________
2. ____ Yes ______________________________ 74. ____

75. Except for your injury, how was your general health been during the last two years?

1. ____ Perfect Please specify main symptoms:
2. ____ Pretty good, but not perfect ____________________
3. ____ I had a good many sick days ____________________
4. ____ My health was poor ____________________
0. ____ Don't know ____________________ 75. ____

76. How did the injury affect you financially?

1. ____ We made some money, because of personal insurance policies
2. ____ We broke even
3. ____ We lost some money, but not too much
4. ____ It imposed a lot of financial restriction
5. ____ It has ruined us financially 76. ____

77. What type of work did your wife do before your injury?

1. ____ Housework only
2. ____ Part-time paid employment
3. ____ Full time paid employment 77. ____

Leave
Blank

78. What type of work does your wife do now?

1. ____ Housework only

2. ____ Part-time paid employment

3. ____ Full time paid employment 78. ____

79. If there is a change in your wife's work situation since your injury, is it related to your injury?

1. ____ No Please explain: ____________________

2. ____ Yes ____________________ 79. ____

80. How much did you earn in the year you returned to work in wages, salary, commissions, or tips from all jobs?

Before deductions for taxes, bonds, dues, or other items. (Enter amount or check "none". If exact figure not known, give best estimate).

$____________ or ________ None 80. ____
(dollars only)

81. How much did you earn in the year you returned to work in profits or fees from working in your own business, professional practice, partnership or farm?

Net income after business expenses. (Enter amount or check "none". If exact figure not known, give best estimate. If business or farm lost money, write "loss" after amount.

$____________ or ________ None 81. ____

Leave
Blank

82. In the year you returned to work did you receive any income from:

Workmen's Compensation
Social Security
Veteran's Payments
Rent (minus expenses)
Interest or Dividends
Unemployment Insurance
Welfare Payments
Any other source not already entered

_____ Yes

_____ No

What is the amount you received from these sources in the year you returned to work? (If exact figure not known, give best estimate).

$_________________
(dollars only)

82. _____

83. Have you ever served in the Army, Navy or other Armed Forces of the United States?

_____ Yes

_____ No

Was it during:
(Check one box on each line)

Yes	No	
____	____	Korean War (June 1950 to Jan. 1955)
____	____	World War II (Sept. 1940 to July 1947)
____	____	World War I (April 1917 to Nov. 1918)
____	____	Any other time, including present service

83. _____

Leave
Blank

V

OTHER QUESTIONS

A. What did you like especially at Harmarville? Please specify __________

____ A. ____

B. What would you change, if you were the director of Harmarville and wanted to improve the Rehabilitation Center? B. ____

C. If Harmarville received a gift of $100,000 how would you recommend it be spent? C. ____

D. What recommendations would you make to your company to improve services to people who were injured like you? D. ____

E. What are you not able to do now that you could do before your injury? E. ____

F. What is the worst part about having been injured? Please be as specific as possible. F. ____

G. Have you gotten any advantages or gains as a by-product of your injury? G. ____

Leave
Blank

H. Did any members of the family leave school since the date of your disability to aid in the support of the family?

___ Yes ___ No

Please specify ____

____ H. ___

The following statements apply to some people who have a serious injury. What occurred in your experience?

I. There was a big change in my wife's attitude toward me

___ Yes ___ No

In what way please describe ____

____ I. ___

J. The family was generally sympathetic while I was unable to work

___ Yes ___ No

How did they show this ____

____ J. ___

K. There was resentment in the family towards me while I was laid up

___ Yes ___ No

How did they show this ____

____ K. ___

Leave
Blank

L. The family wanted me to return to work before I was physically able to do so

___ Yes ___ No

Please explain ____

____ L. ___

M. Things got out of hand in the family while I was away

___ Yes ___ No

Please explain ____

____ M. ___

N. My wife preferred to have me stay at home rather than go to the Rehabilitation Center

___ Yes ___ No

Please explain ____

____ N. ___

O. W had a lot of help from relatives, friends and/or neighbors while I was ill

___ Yes ___ No

Please explain ____

____ O. ___

P. We have asked a lot of questions. Is there anything you would want to ask us or you want to say which was not covered by this interview? P. ___

APPENDIX D

PHYSICIAN'S INTERVIEW SCHEDULE

PLANT PHYSICIANS QUESTIONNAIRE

Leave
Blank

What do you expect from a Rehabilitation Center in terms of services and reports rendered to your company?

11. The Center staff should provide in their discharge report information specifically defining the patient's work limitations.

____Yes

____No

____Uncertain

____Comment ____ ____11.

12. The Center's program should provide a simulated "on the job work conditioning activity" to help determine the patient's work tolerance.

____Yes

____No

____Uncertain

____Comment ____ ____12.

13. Is a statement of the patient's residual percentage of disability as seen by the physiatrist at the Center of any value to you as a plant medical director?

____Yes

____No

____Uncertain

____Comment ____ ____13.

Leave
Blank

14. What other services and reports could be useful to you (Specify)

____ ____14.

5-22. Please rank in order of relative importance the following factors involved in a decision to refer a patient to Harmarville Rehabilitation Center. Please add other factors which you regard as highly relevant.

____15. Length of time involved since original injury ____15.

____16. Patient's attitude toward work ____16.

____17. Unforeseen medical complications ____17.

____18. Optimum reduction of disability prior to re-employment ____18.

____19. Psycho-social maladjustment of patients related to their disability ____19.

____20. Anticipated pressure from union ____20.

____21. Evaluation for job change or modification of present job ____21.

____22. Other (Specify) ______________________________ ____22.

-26. What information is usually given to your patients about Harmarville Rehabilitation Center before a referral is made? Check as many as apply.

____23. Description of physical facilities and Center rules ____23.

____24. Estimated length of stay at the Center ____24.

____25. Description of psychological and social services available at the Center ____25.

____26. Other (Specify) ______________________________ ____26.

Leave
Blank

27. What is the best method for orienting a patient to a Rehabilitation Center? Check only one.

_____1. Plant physician can normally handle this adequately

_____2. A patient should be seen prior to admission to a Center by a representative of this Center

_____3. Both procedures would help insure the patient's understanding for his referral to Harmarville Rehabilitation Center

_____4. Other (Specify) ____ _____27.

28-31. What new services has your plant utilized or would like to implement in their medical department? Check as many as apply.

_____28. Physical medicine consultation in a regular clinic setting _____28.

_____29. Use of a professionally trained physical therapist who has techniques oriented toward the goal of returning a man to work and/or kinesthetic understanding of job demands _____29.

_____30. Social services for patients requiring rehabilitation _____30.

_____31. Other (Specify) ____ _____31.

36. How much do you think your company's patients were helped at Harmarville Rehabilitation Center?

_____1. Not at all Please explain: ______________________________

_____2. A little ____

_____3. Some ____

_____4. A great deal ____ _____36.

Leave
Blank

7-39. Among the many services at Harmarville, please indicate which you would rank as the three most important? Assign no. 1 to the most important 2 to the second most important and 3 to your third choice.

_____1. Speech Therapy

_____2. Social Work

_____3. Occupational Therapy

_____4. Physiotherapy

_____5. Simulated Work Activity

_____6. The Food

_____7. Living accommodation (rooms, recreation room, etc.)

_____8. Medical Care

_____9. Recreational Program

____10. Nursing Care

_____37.

_____38.

_____39.

A. What do you like especially about the Harmarville program? Please specify ______________________________

_____A.

B. What would you change, if you were the director of Harmarville and wanted to improve the rehabilitation center?

_____B.

C. If Harmarville received a gift of $100,000 how would you recommend it be spent?

_____32. Development of better coordinated relationships between the Rehabilitation Center and an industrial medical department

_____33. Gradual actual "on the job" work conditioning

_____34. Use of various other medical consultants

_____35. Other (Specify) ______________________________

___C-32.

___C-33.

___C-34.

___C-35.

Leave
Blank

D. What factors and departments within the company must be considered before placing an injured employee in a selective job? (Please specify) _____D.

____

E. What services did you expect when you referred your first patient to Harmarville Rehabilitation Center? _____E.

F. What are your expectations now in terms of value for the patient and you as the plant physician? _____F.

G. As a by-product or a direct result of the association of the Center with the medical department, what do you see of significant value? _____G.

H. At the time of referral of your first patient, did you feel the Rehabilitation Center staff was able to understand and appreciate the factors and problems encountered in returning a man to work? _____H.

a) How do you feel now?

I. Do you have unresolved or partially resolved problems with patients treated at the Rehabilitation Center? Please specify.

_____Psychosocial

_____Communications

_____Medical records

_____Legal aspects _____I.

Leave
Blank

J. In what way do the characteristics of those patients treated at the plant differ from those referred to Harmarville Rehabilitation Center? ____J.

K. If a patient isn't expected to return to the steel industry, what interpretations concerning pre-vocational testing and potential vocational re-training are given to the patient? ____K.

What reasons are usually given to the patient for wanting him to go to Harmarville Rehabilitation Center? Please discuss the following.

L. For a trial treatment period ____L.

M. Your anticipations of the degree of recovery or improvement the patient could expect ____M.

N. To help you and the company in selecting an alternative job, if it appears that the patient cannot return to his regular job ____N.

O. Help to return the patient to his regular job ____O.

P. What could management or unions do to improve the use of rehabilitation technics? (Particularly interested in problems around seniority and rules effecting job placement.) ____P.

Q. Have rehabilitation services ever been a subject of discussion between union and management in your plant? ____Q.

Leave
Blank

1. Plant ________________________________ _____1.

2-5. Physicians Name ________________________________ _____2-5.

6. Medical Specialties (Specify) ____________________________ _____6.

7. Extent of Present Employment

_____1. Fulltime

_____2. Part-time, regular

_____3. Part-time, occasional consultation as needed _____7.

8. Years of Full-time Experience in Industrial Medicine

_____0. None

_____1. One year

_____2. Two to five years

_____3. Five or more years _____8.

9. Who generally makes the decision that an industrial accident should be referred to a Rehabilitation Center?

_____1. Medical director of company

_____2. Medical director of plant

_____3. Plant consultant

_____4. Attending physician

_____5. Other (Specify) __________________________________ _____9.

10. How are most patients involved in the decision?

_____1. They are told of the medical recommendation

_____2. They are asked to weigh the pro's and con's of the recommendation

_____3. Other (Specify) _____________________________________ _____10.